

A revision of the western Atlantic Ocean genera *Anna*, *Antillophos*, *Bailya*, *Caducifer*, *Monostiolum*, and *Parviphos*, with description of a new genus, *Dianthiphos*, and notes on *Engina* and *Hesperisternia* (Gastropoda: Buccinidae: Pisaniinae) and *Cumia* (Colubrariidae)

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ABSTRACT

The western Atlantic members of the genera *Anna* Risso, 1826, *Antillophos* Woodring, 1928, *Bailya* M. Smith, 1944, *Caducifer* Dall, 1904, *Cumia* Bivona-Bernardi, 1838, *Monostiolum* Dall, 1904, and *Parviphos* Sarasua, 1984, and a new genus, *Dianthiphos*, are reviewed. The following taxa are recognized for *Anna*: *A. florida* García, 2008, *A. milleri* (Usticke, 1959), and *A. willemsae* (De Jong and Coomans, 1988). *Anna royalensis* new species is described from Roatán and Utila Islands, Honduras. The following taxa are recognized for *Antillophos*: *A. bahamasensis* Petuch, 2002, *A. beauii* (Fischer and Bernardi, 1857), *A. candeanus* (d'Orbigny, 1842), *A. chazaliei* (Dautzenberg, 1900), *A. oxyglyptus* Dall and Simpson, 1901, *A. smithi* (Watson, 1885), and *A. virginiae* (Schwengel, 1942). *Antillophos verriculum* new species is described from the Guajira Peninsula, Colombia. The following taxa are recognized for *Bailya*: *B. intricata* (Dall, 1884), *B. parva* (Adams, 1850), and *B. weberi* (Watters, 1983). *Bailya morgani* new species is described from Roatán Island, Honduras, and *Bailya sanctorum* new species is described from St. Thomas, US Virgin Islands. The following taxon is recognized for *Caducifer*: *C. atlanticus* Coelho, Matthews, and Cardoso, 1970. *Caducifer camelopardalus* new species is described from Bahia State, Brazil. The following taxon is recognized for *Cumia*: *C. sunderlandi* (Petuch, 1995). *Cumia clavula* new species is described from Costa Rica. The following taxa are recognized for *Monostiolum*: *M. auratum* Watters and Finlay, 1989, *M. harryleei* García, 2006, *M. tessellatum* (Reeve, 1844), and *M. rosewateri* Watters and Finlay, 1989. *Monostiolum nocturnum* new species is described from Tobago and *Monostiolum fumosum* new species is described from Isla Coche, Venezuela. The following taxa are recognized for *Parviphos*: *P. adelus* (Schwengel, 1942) and *P. marijkae* (De Jong and Coomans, 1988). *Parviphos chalconidius* new species is described from the Mariel sands, Cuba. The genus *Dianthiphos* new genus is described, with *D. bernardoi* (Costa and Gomes, 1998) as its type species. *Dianthiphos electrum* new species is described from the Guajira Peninsula, Colombia. *Engina goncalvesi* Coltro, 2005, is compared with species of *Parviphos*. *Hesper-*

isternia itzamnai new species is described from Yucatan, Mexico.

INTRODUCTION

Many genera of small buccinids from the western Atlantic Ocean have not been comprehensively reviewed since Tryon (1881). Since that time numerous species have been described as the results of trawling, dredging, and SCUBA collecting in previously inaccessible locations. In particular, an abundance of material has been brought to light by commercial collectors. Much of this material has yet to make its way into institutional collections. It has become apparent that the discovery of new taxa has outpaced their description and that the identification of even the most commonly encountered species has become problematic. To that end, the western Atlantic members of the genera *Anna* Risso, 1826, *Antillophos* Woodring, 1928, *Bailya* M. Smith, 1944, *Caducifer* Dall, 1904, *Monostiolum* Dall, 1904, and *Parviphos* Sarasua, 1984, and a new genus, *Dianthiphos*, are reviewed here. The western Atlantic species of the colubrariid genus *Cumia* Bivona-Bernardi, 1838, are also reviewed.

With the exception of *Anna* and *Caducifer*, these genera appear to be of New World origin. In the eastern Pacific Ocean *Antillophos* is represented by *A. veraaguensis* (Hinds, 1843), a cognate of the western Atlantic *A. virginiae* (Schwengel, 1942). *Bailya* is present there as *Bailya anomala* (Hinds, 1844). *Monostiolum* occurs as *M. crebistriatus* (Carpenter, 1856) (the cognate of the Pliocene Floridian species *M. thomasi* (Olsson, 1967) and *M. petiti* (Olsson, 1967)) and *M. pictum* (Reeve, 1844). *Parviphos* is represented by *P. nigricostatus*

(Reeve, 1846) (previously regarded as a *Monostiohum*). On the other hand, no members of *Antillophos*, *Baihya*, *Caducifer*, *Monostiohum*, *Parviphos*, or *Dianthiphos* have been recorded from the eastern Atlantic Ocean (Ardevini and Cossignani, 2004), although *Anna* is represented by *A. assimilis* (Reeve, 1846).

Based on a phylogenetic study using shell morphology, Haasl (2000) suggested that the Photinae Gray, 1857 (considered synonymous with Pisaninae Gray, 1857, by Bouchet and Rocroi, 2005, and including many of the genera discussed in this study) was sister group to his Nassariinae Iredale, 1916, both having been derived from the American Eocene-Oligocene *Tritiaria*. This considerably confounds the limits between the Buccinidae and Nassariidae (the latter considered paraphyletic by Haasl, 2000) and the correct placement of the pisanines. Ponder and Warén (1988) had also united the Nassariidae (among others) with the Buccinidae, but few recent authors have followed this conclusion.

MATERIALS AND METHODS

Shell length is measured from the tip of the apex to the end of the siphonal canal. Width is measured as the maximum dimension in a plane with the aperture perpendicular to the axis of coiling. Spiral sculpture is counted from the suture to the end of the siphonal canal. Axial sculpture counts refer to inter-varical sculpture; varices and any sculpture on varices are treated separately. Lirae counts within the outer lip may include bifurcating lirations. Locality information, aside from type locality designations, may have been augmented from the original label for clarification. Given the generalized nature of most label information, no attempt has been made to georeference sites that did not originally include coordinates. Dimensions in captions refer to shell length.

The primary collections used for this study were The Bailey-Matthews Shell Museum, Sanibel, FL, USA and the Florida Museum of Natural History, Gainesville, FL, USA, with material from the collections of Colin Redfern, Boca Raton, FL, USA, Emilio F. García, Lafayette, LA, USA, Harry G. Lee, Jacksonville, FL, USA, and the author's collection. Additional material was provided by the Academy of Natural Sciences, Philadelphia, PA, USA, the Field Museum of Natural History, Chicago, IL, USA, the Muséum national d'Histoire naturelle, Paris, France, the Natural History Museum, London, UK, the Ohio State University Museum of Biological Diversity, Columbus, OH, USA, the U.S. National Museum of Natural History, Washington D.C., USA, and the Zoölogisch Museum, Amsterdam, The Netherlands.

Abbreviations used in the text are: AMNH: American Museum of Natural History, New York City, NY, USA; ANSP: Academy of Natural Sciences, Philadelphia, PA, USA; BM(NH): Natural History Museum, London, UK; BMSM: The Bailey-Matthews Shell Museum, Sanibel, FL, USA; CR: collection of Colin Redfern, Boca Raton, FL, USA; EFG: Collection of Emilio F. García, Lafayette,

LA, USA; FMNH: Field Museum of Natural History, Chicago, IL, USA; GTW: Collection of the author, Columbus, OH, USA; HGL: Collection of Harry G. Lee, Jacksonville, FL, USA; MCZ: Museum of Comparative Zoology, Cambridge, MA, USA; MNHN: Muséum national d'Histoire naturelle, Paris, France; OSUM: Ohio State University Museum of Biological Diversity, Columbus, OH, USA; UF: Florida Museum of Natural History, Gainesville, FL, USA; USNM: U.S. National Museum of Natural History, Washington D.C., USA; ZMA: Zoölogisch Museum, Amsterdam, The Netherlands.

SYSTEMATICS

Family Buccinidae Rafinesque, 1815
Subfamily Pisaninae Gray, 1857

Genus *Anna* Risso, 1826

Anna Risso, 1826: 214.

Type Species: *Anna massena* Risso, 1826, by monotypy.

Description: Small-sized for the family (to 27 mm, but usually \ll 12 mm). Fusiform; aperture ca. 50% of shell length. Protoconch of 1.5 small, smooth, rounded whorls. Teleoconch sculpture of narrow, spiral cords and prominent axial ribs. Terminal varix thickened, wide, slightly or not at all reflected abaperturally. Aperture lirate within outer lip. Columella with denticles along much or all of its length. Columella distinctly angled at siphonal canal. See Table 1 for comparison with other genera.

Discussion: The species discussed here are assigned to *Anna* with some reservation. Vermeij (2006) did not include *A. milleri* or *A. willemsae*, or any western Atlantic species, in his list of *Anna* species (both *A. milleri* and *A. willemsae* were previously relegated to other genera). Vermeij's concept of *Anna* included shells with 11 or more axial ribs whereas only *A. florida* of the western Atlantic Ocean species has more than 10 ribs. The western Atlantic Ocean species also have long lirae within the inner lip in contrast to the much shorter lirae of other species of *Anna*. The species discussed here are congeneric but may belong to an as yet unnamed genus.

In the western Atlantic Ocean, *Anna* is most similar to *Parviphos*. *Parviphos* differs from *Anna* in being larger, less fusiform, and in the structure of its protoconch and terminal varix. The protoconch of *Parviphos* is tabulate whereas the protoconch of *Anna* is rounded. The terminal varix of *Parviphos* is massive, produced outwards, and reflected abaperturally. The terminal varix of *Anna* is also massive but does not project as far out from the whorl or reflect backward to the same degree.

Anna florida García, 2008
(Figures 1–16)

?*Cantharus massena* "Risso, 1826" Dall and Bartsch, 1911: 287; Abbott, 1974: 219 [? non Risso, 1826, possible misidentification].

Table 1. Shell characteristics of genera exclusive of *Engina*. * excludes denticles bordering anal or siphonal canal.

	Protoconch	Previous varices	Columella continuous or angled	Columella with denticles*	Outer lip liriate	Decollate
<i>Anna</i>	rounded smooth	no	angled	yes	yes	no
<i>Antillophos</i>	conical keeled	yes	angled	some species	yes	no
<i>Bailya</i>	conical smooth	no	continuous	no	yes	no
<i>Caducifer</i>	tabulate smooth	no	angled	no	some species	yes
<i>Cunia</i>	minute, not differentiated	yes	slightly angled	no	no	no
<i>Dianthiphos</i>	bulbous smooth	no	angled	no	no	no
<i>Monostiolum</i>	tabulate smooth	no	angled	no	no	no
<i>Parviphos</i>	tabulate smooth	no	angled	some species	yes	no

Anna florida García, 2008a: 142–145, figs. 1–8.

Description: Average size 14.2 mm in length (min, 12.9; max, 16.2). Fusiform; spire ca. 60% total length. Protoconch small, of 1.5 smooth, white whorls with tan blotches. Teleoconch of 5.75 whorls, strongly demarcated from protoconch. Teleoconch sculpture of ca. 13 rounded, widely separated, spiral threads, including siphonal canal, with intercalated 2° threads or cords. Spiral cords on siphonal canal slightly stronger. Axial sculpture of widely spaced, high ribs; 9–13 ribs on penultimate whorl, ca. 13 ribs on last whorl, not including varix. Intersections of axial and spiral sculpture with strong, elongated nodules. Terminal varix well-developed, somewhat constricted, wide. Aperture oval, outer lip with 7–9 liriate teeth. Columella angled at siphonal canal, bounded by 2 plications; 3–5 minute denticles along partially erect parietal wall; one denticle bounding anal canal on columella. Siphonal canal short, open. Color white with darker orangish-tan axial ribs broken by one pale band at subperiphery and another on siphonal canal, markings aligned into flammulations or as polka dots. Aperture white. Operculum, radula, and anatomy unknown.

Holotype: Holotype ANSP 418032.

Type Locality: 73 mi. WSW of Anna Maria Key, W. Florida, Gulf of Mexico, in 50 m.

Paratypes: ANSP 418033, 1 shell, 27°42.71' N, 84°13.09' W, in 68–68.5 m; EFG 25352, 1 shell, 70.6–72.9 m, 24°44.77' N, 83°43.71' W; EFG 13089, UF 419133, HGL, each 1 shell, 2 m, off Sugarloaf Key bridge, S Florida; HGL, 1 shell, 59–117 m (*ex-pisce*), off west Florida; HGL, 2 shells, 44–50 m, 68–83 km off Ponte Vedra, St. John's Co., Florida; USNM 1111876, HGL, each 1 shell, 0 m, Turtle Beach, south coast of Bermuda.

Other Material Examined: Florida. UF 266955, off Miami, 80 m, Miami-Dade Co; UF 154765, off Destin, 28 m, Okaloosa Co.; UF 289781, off St. Petersburg, 27°56' N, 84° 29' W, Pinellas Co.; UF 150206, 58 m, off Naples, 26°35' N, Collier Co.; UF 186142, 100 m, 200° off Sand Key, TRITON Sta. 956, Monroe Co.; FMNH 154784, 191310, 191364, UF 70453, all Bonfish Key, Monroe Co.

Distribution: This species is known from south Florida and the eastern Gulf of Mexico from the Florida Keys to Destin, Florida. García (2008a) also reported this species from Bermuda but the specimen may not be conspecific. *Anna florida* appears to be rarely encountered although one lot from Bonfish Key (FMNH 191310) contained 99 specimens.

Habitat: Dead specimens have been recorded from 28–100 m; live specimens have been collected from 2–50 m. Substrate unknown.

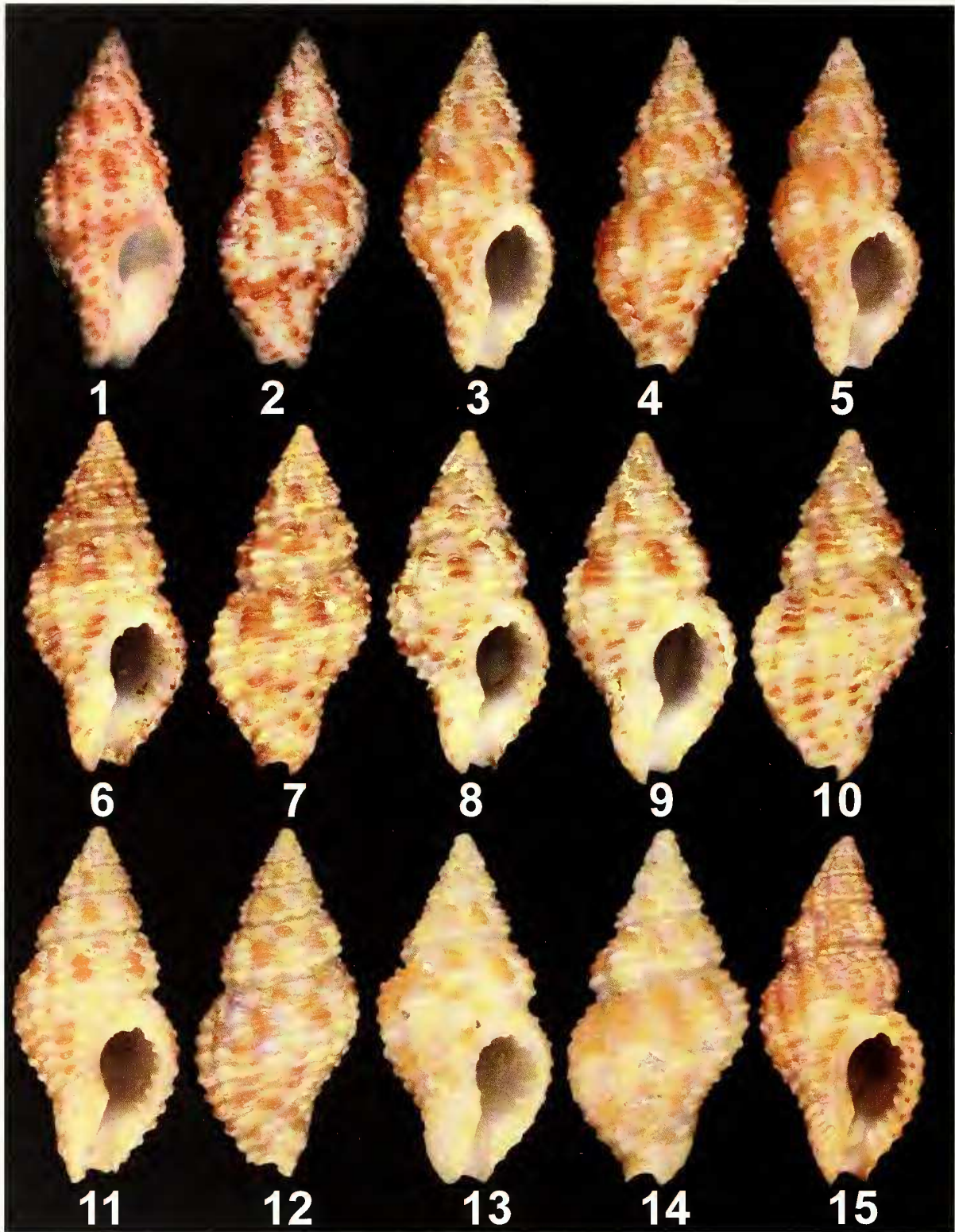
Etymology: Latin feminine noun *florida*, full of flowers, “in reference to the profusion of bright nodes that cover the surface of the shell. The epithet is also meant to evoke the State of Florida, whose name has the same provenance and where the new species seems to be most common” (García, 2008a).

Discussion: *Anna florida* is most similar to *A. willemsae*. They do not appear to be sympatric. *Anna florida* is larger and more fusiform than *A. willemsae*, often has more axial ribs on the penultimate whorl (7–10 in *A. willemsae* vs. 9–13 in *A. florida*), and a different color pattern consisting of orangish polka-dots in contrast to the brown blotches of *A. willemsae*.

Anna milleri (Usticke, 1959)
(Figures 16–24)

Bailya milleri Usticke, 1959: 67–68, pl. 2, fig. 21; Kaicher, 1985: No. 4385; Boyko and Cordeiro, 2001: fig. 4.
“*Bailya milleri* Usticke, 1959.—Watters, 2007: 10.

Description: Average size 9.1 mm in length (min, 8.3; max, 10.0). Fusiform; spire ca. 50–60% total length. Protoconch small, of 1.5 smooth, uncolored whorls. Teleoconch of 5 whorls, weakly demarcated from protoconch. Teleoconch sculpture of ca. 15–16 rounded, narrow, widely separated, spiral threads, including siphonal canal, often with a single, minute, intercalated 2° thread. Spiral cords on siphonal canal slightly stronger. Axial sculpture of widely spaced, high ribs; ca. 9 ribs on penultimate whorl, ca. 8 ribs on last whorl, not including varix. Intersections of axial and spiral sculptured without elongated nodules. Terminal varix well-developed, somewhat constricted, wide. Aperture oval, outer lip



Figures 1–15. *Anna florida* García, 2008. **1–2.** Holotype, ANSP 418032, 14.2 mm, photo courtesy E. F. García. **3–4.** UF 150206, from the type locality, 14.3 mm. **5.** UF 150206, from the type locality, 14.4 mm. **6–10.** UF 70453, Boncfish Key, Monroe Co., Florida. **6–7.** 12.0 mm. **8.** 11.0 mm. **9–10.** 10.7 mm. **11–12.** UF 186142, 100 m, 200° off Sand Key, *Triton* Sta. 956, Monroe Co., Florida, 11.3 mm. **13–14.** UF 266955, off Miami, 80 m, Miami-Dade Co., Florida, 11.1 mm. **15.** UF 154765, off Destin, 28 m, Okaloosa Co., Florida, 12.8 mm.



Figure 16. Distribution of *Anna florida* García, 2008 (bullseye), *Anna milleri* (Usticke, 1969) (solid), *Anna royalensis* new species (R), and *Anna willemsae* (De Jong and Coomans, 1988) (W).

with 7–8 lirate teeth. Columella angled at siphonal canal and bearing ca. 6 minute but distinct denticles along its length; parietal lip erect for most of its length. Siphonal canal short, open. Color white flushed with tan on axial ribs and with wide sub-peripheral white band. Primary spiral cords darker brown. Occasional specimens are uniformly white but still possess dark primary cords. Aperture white. Operculum oval, pale yellow, with anterior terminal nucleus. Redfern (2006: fig. 399c) illustrated a live animal; it is white with brown streaks and maculations. Radula and anatomy unknown.

Holotype: AMNH 193772, specimen not available for study, but figured in Kaicher (1985) and Boyko and Cordeiro (2001), the latter reproduced here.

Type Locality: Outer reef of Christiansted Harbor, St. Croix, US Virgin Islands.

Other Material Examined: Bahamas. HGL, Cat Island; HGL, 28 m, Long Cay, Exuma Islands; HGL, drift, Governor's Harbour, Eleuthera; HGL, drift, North Current Cut, Current Island, Eleuthera; HGL, 0.3–1 m, Joe's Creek, Abaco; CR 3597, 10445, both 0.5 m, Joe's Creek, Abaco, 26°37' N, 77°16' W; CR 3737, 9 m, Chub Rocks, Abaco, 26°44' N, 77°13' W. Cuba. UF 316419, Jauco, Santiago de Cuba Province. Honduras. EFG 17461, 10–13 m, Helene, E Roatán Island.

Distribution: This is a rare species. It has been found off the Bahamas, Cuba, the Virgin Islands, and Honduras. The holotype was found in shallow water but was apparently not live-taken. Usticke (1959: 68) remarked that "there were more of them, but just at that moment a terrific hailstorm(?) broke, so roiled the water that the others got away."

Habitat: Dead shells have been found to 28 m but live shells have been collected from beach drift to 9 m under rocks. The holotype was found on a reef.

Etymology: Named after Joe Miller, friend of Usticke.

Discussion: Usticke's original figure seems to be a drawing or retouched photograph and was poorly executed. Fortunately the type was re-illustrated by Kaicher (1985) and Boyko and Cordeiro (2001). Faber (2007) placed *Bailya marijkae* De Jong and Coomans, 1988, *Engina willemsae* De Jong and Coomans, 1988, and *Engina goncalvesi* Coltro, 2005, in synonymy of *A. milleri*, but I consider all to be valid species. As mentioned by Faber (2007) *Ricinula eximia* Reeve, 1846, supposedly from the Indo-Pacific Ocean, is extremely close to *A. milleri*. A syntype of *R. eximia* was illustrated in Cernohorsky (1978, fig. 54). Kaicher (1990, No. 5839) illustrated a different syntype of *R. eximia*, but it is not conspecific with the Cernohorsky specimen. Both syntypes of *R. eximia* have a more elongate shell that lacks the numerous denticles along the length of the columella found in *A. milleri*. I do not believe they are the same species. See Table 2 for a comparison with other *Anna*.

Anna milleri is most similar to *A. willemsae* but consistently differs in the following ways. The primary spiral cords of *A. willemsae* may be colored white or brown in the interaxial spaces but are always white as the pass over the axial ribs; in *A. milleri* the cords are dark regardless of their position. The spiral cords, both 1° and 2°, are better developed in *A. willemsae* than in *A. milleri*. *Anna milleri* is more coarsely sculptured and has a different color pattern than *A. royalensis* new species.

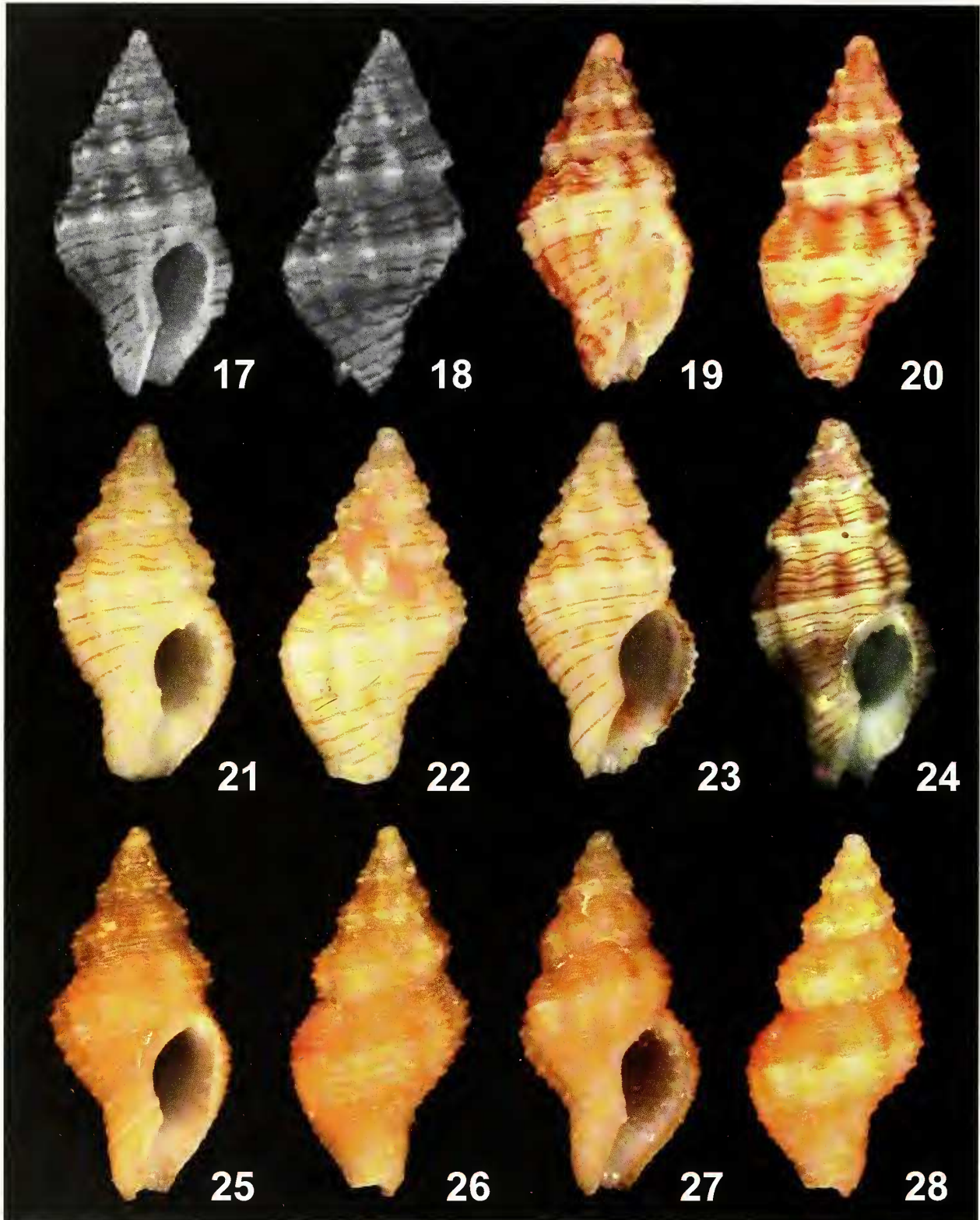
Anna royalensis new species
(Figures 16, 25–28)

Description: Shell 9.7–10.4 mm in length (holotype 10.4 mm in length). Fusiform; spire ca. 50–60% total length. Protoconch small, of 1.5 smooth, uncolored whorls. Teleoconch of 4.75 whorls, strongly demarcated from protoconch. Teleoconch sculpture of ca. 16 rounded, prominent, widely-separated, spiral threads, including siphonal canal, with intercalated 2° and 3° threads. Spiral cords on siphonal canal slightly stronger. Axial sculpture of widely-spaced, rounded, high ribs; 8 ribs on penultimate whorl, 7–8 ribs on last whorl, not including varix. Intersections of axial and spiral sculptured with elongated nodules formed from cords, most pronounced on periphery. Terminal varix well-developed, somewhat constricted, wide. Aperture oval, outer lip with 8 lirate teeth. Columella angled at siphonal canal and bearing 3–5 minute denticles along its length, becoming progressively stronger anteriorly; parietal lip erect for most of its length. Siphonal canal short, open. The color is tan, with darker axial ribs, and a vague, wide sub-peripheral pale band. Aperture white. Operculum, radula, and anatomy unknown.

Holotype: UF 425837 (*ex* GTW).

Type Locality: Sand and coral rubble, 6.7 m, off Old Port Royal Harbour, SE Roatán Island, Honduras.

Paratype: BMSM 17977, 1 shell, 9.7 mm, from the type locality (*ex* GTW).



Figures 17–28. *Anna* species. 17–24. *Anna milleri* (Ustiecke, 1959). 17–18. Holotype, *Bailya milleri* Ustiecke, 1959, AMNH 193772, 10 mm, reproduced from Boyko and Cordeiro (2001). 19–20. HGL, drift, Governor's Harbour, Eleuthera, Bahamas, 9.4 mm. 21–22. HGL, drift, North Current Cut, Current Island, Eleuthera, Bahamas, 8.5 mm. 23. HGL, Cat Island, Bahamas, 8.4 mm. 24. EFG 17461, 10–13 m, Helene, E Roatán Island, Honduras, 11 mm, photo courtesy E.F. García. 25–28. *Anna royalensis* new species. 25–26. Holotype, UF 425837, 10.5 mm. 27–28. Paratype, BMSM 17977, 9.7 mm, from type locality.

Table 2. Shell characteristics of *Anna* species.

	Average length (max) mm	# axial ribs on penultimate whorl	# denticles on columella	# lirae on inner surface of outer lip	color
<i>florida</i>	14.2 (16.2)	9–13	3–5	7–9	White with orange-brown flamulations and dots and white band
<i>milleri</i>	9.0 (10.0)	9	6	7	Tan axials and white band, spiral cords brown
<i>royalensis</i>	10.4	8	5	8	Tan with darker axials and pale band
<i>willemsae</i>	10.2 (10.9)	7–10	5–6	6–7	Tan axials and white band, spiral cords brown, white over axials

Other Material Examined: Honduras. GTW 14020a, 4–5 m, Utila Island (three shells).

Distribution: Known only from the type locality and Utila Island. The holotype and paratype are from 6.7 m and are freshly dead shells.

Habitat: Freshly dead shells have been found in sand under coral rubble at 5–7 m. The living *Utila* specimens were found at 4–5 m on the underside of a partially buried, dead coral slab in silty sand (B. Besse, pers. comm., 2009).

Etymology: After the type locality, Old Port Royal.

Discussion: This appears to be a Bay Islands endemic. It differs from the related *Anna willemsae* in having well-formed 2° and 3° spiral cords, in the weaker columellar denticles, its more biconical shape, and its nearly monochromatic color pattern. *Anna milleri* also occurs at Roatán Island (Figure 24) but is easily separable by its color pattern and less coarse sculpture; it may occur in deeper water there than *A. royalensis*. *Anna royalensis* differs from *A. florida* in being generally smaller, less nodulose, and in having a different color pattern. See Table 2 for a comparison.

Anna willemsae (De Jong and Coomans, 1988)
(Figures 16, 29–40)

Engina willemsae De Jong and Coomans, 1988: 83, pl. 38, fig. 452; Faber, 2007: 74, figs. 9,10 [holotype, in synonymy of *Bailya milleri* Usticke, 1959].

?*Pollia* sp. Redfern, 2001: 94, pl. 43, figs. 399a, b, c.

Engina milleri (Usticke, 1959).—Faber, 2007: 74–75, figs. 13–16 [in synonymy].

Description: Average size 10.2 mm in length (min, 9.3; max, 10.9). Fusiform; spire ca. 50–60% total length. Protoconch small, of 1.5 smooth, uncolored whorls. Teleoconch of 5 whorls, weakly demarcated from protoconch. Teleoconch sculpture of ca. 13–15 rounded, prominent, widely separated, spiral threads, including siphonal canal, with intercalated 2° threads. Spiral cords on siphonal canal slightly stronger. Axial sculpture of widely spaced, high ribs; ca. 7–10 ribs on penultimate

whorl, 6–8 ribs on last whorl, not including varix. Intersections of axial and spiral sculptured with strong, elongated nodules. Terminal varix well developed, somewhat constricted, wide. Aperture oval, outer lip with 6–7 lirate teeth. Columella angled at siphonal canal and bearing 5–6 minute but distinct denticles along its length; parietal lip erect for most of its length. Siphonal canal short, open. Color tan, orangish, or brown with wide sub-peripheral pale band. Primary spiral cords brown between axial ribs white as they pass over the axial ribs. Aperture white. Operculum leaf-shaped, tan, with anterior terminal nucleus. Radula and anatomy unknown.

Holotype: ZMA 3.87.085.

Type Locality: Aruba, harbour.

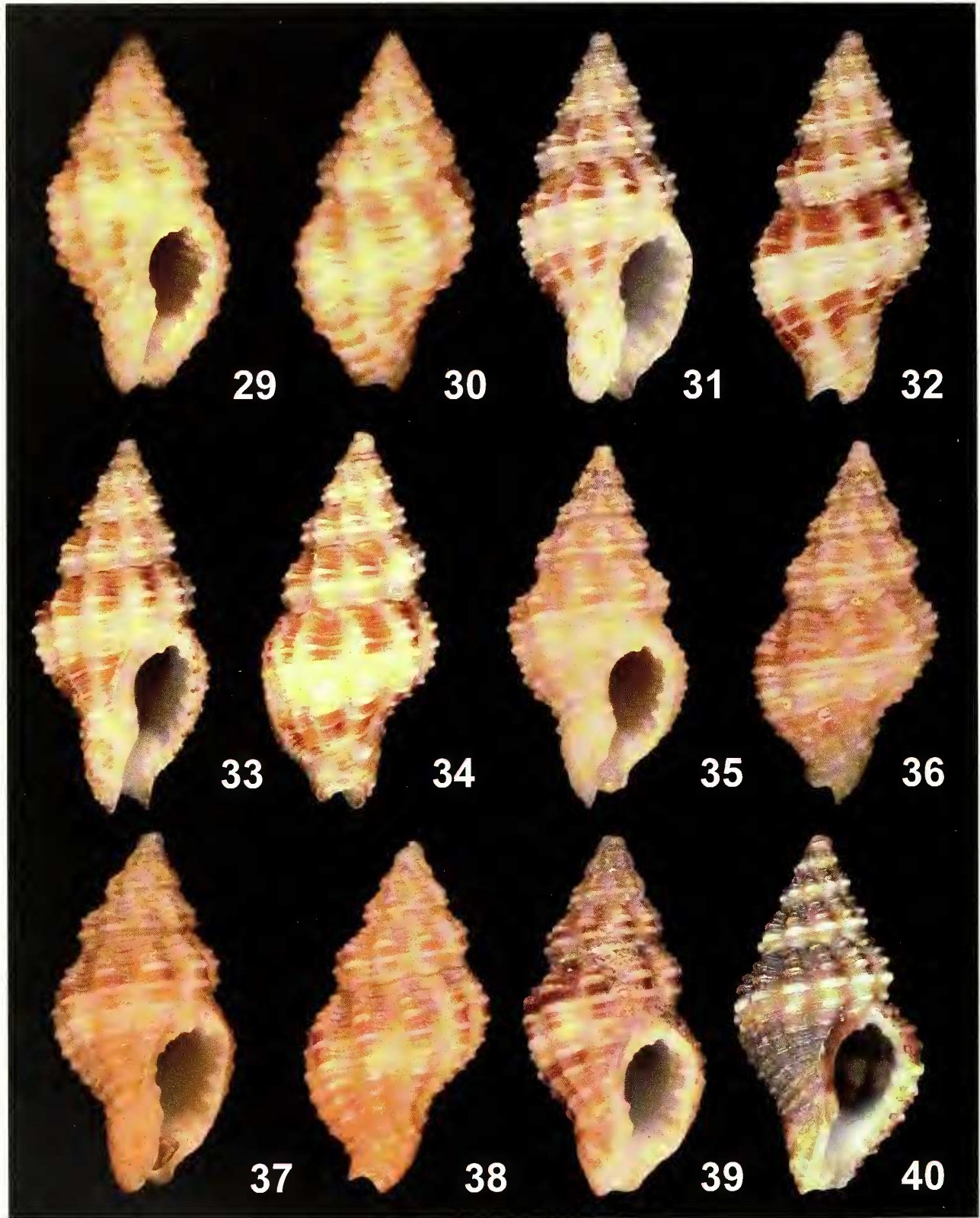
Other Material Examined: Panama. UF 397258, Devil's Beach; UF 425826, Isla Galeta; UF 160582, East Colon Island. Colombia. GTW 7371b, 40–60 m, off Cayos de San Andrés. Trinidad and Tobago. UF 425828, Scarborough, Tobago. St. Vincent and Grenadines. Phil Fallon coll., Clifton Harbour, Union Island. Netherlands Antilles. Frère Fredericus Verberne coll., Aruba. ?Venezuela. GTW 7371c, 12–17 m, Coché, Isla Margarita.

Distribution: This is a rare species in the southern Caribbean Sea. It has been found off Panama, Cayos de San Andres, Tobago, and Aruba. Most specimens seen are from Cayos de San Andres. Possibly the Bahamas and off Venezuela as well (see Discussion, below).

Habitat: Most specimens examined were worn. Freshly dead shells were recorded from 40–60 m. Nothing is known of the substrate.

Etymology: Named after Mrs. Ineke Peeters-Willems, collector of the type specimen.

Discussion: Some of the specimens referred to here as *A. willemsae*, such as the *Pollia* sp. of Redfern (2001, pl. 43, figs. 399a, b, c) from the Bahamas, and specimens from Isla Margarita, Venezuela (Figure 40), will probably warrant description as a new species when more examples are found. They differ in having much darker coloration and coarser sculpture than either *A. milleri*



Figures 29–40. *Anna willamsae* (De Jong and Coomans, 1988) 29–30. Holotype, ZMA 3.87.085, 10.4 mm. 31–34. GTW 7371b, 40–60 m, off Cayos de San Andrés, Colombia. 31–32. 9.4 mm. 33–34. 9.2 mm. 35–36. UF 42582S, Punta Galeta, Isla Galeta, Panama, 10.7 mm. 37–39. UF 39725S, Devils Beach, Panama. 37–38. 9.9 mm. 39. 11.0 mm. 40. GTW 7371c, 12–16 m, Coché, Isla Margarita, Venezuela, 9.2 mm.

or *A. willemsae*. For now this form has only been recorded from the extreme north and south of the Caribbean Sea.

See under *A. milleri* for a comparison with that species. See Table 2 for a comparison with other western Atlantic *Anna*.

Genus *Antillophos* Woodring, 1928

Tritiaria (*Antillophos*) Woodring, 1928: 2, 6, 259.

Type Species: *Cancellaria candeana* d'Orbigny, 1842, by original designation.

Description: Small to medium-sized (to 40 mm). Fusiform; aperture 50–70% of shell length. Protoconch of 1.5 small, smooth, conical whorls with sharp peripheral keel. Teleoconch sculpture of spiral threads and axial ribs. Previous varices may be present. Terminal varix thickened and often wide. Aperture liriate within outer lip. Columella with denticles bounding anal and siphonal canals; some species with additional denticles along length of columella. Columella distinctly angled at siphonal canal. See Table 1 for comparison with other genera.

Discussion: The genus *Phos* has been divided into several subgenera, some (including *Antillophos*) now regarded as full genera. The distinctions are based on minor differences in protoconch morphology, teleoconch sculpture, and the presence or absence of lirae on the columella. This combination of characteristics does not seem to lead to a natural grouping. Even the protoconch differences are minor, based as they are on the number of keels or spiral threads (one in *Antillophos*, up to four in *Metaphos*, etc.). But the Senegalese "*Phos*" *grateloupinum* Petit, 1853, has a single spiral thread for one whorl but between two and five keels are added subsequently. Adding to the confusion, numerous Philippine species have recently been assigned to *Antillophos* (Fraussen and Poppe, 2005), some having a protoconch with two spiral keels whereas others have only one. At this time it is difficult to differentiate one *Phos*-like supraspecific taxon from another. Dall (1889: 178) commented on the western Atlantic *Phos*: "But a very small amount of investigation in this case, as in many others, will show that, apart from the bare shells, there is much yet to be learned about almost all of these animals."

Tritiaria is considered a fossil genus and the possible precursor to *Antillophos* (Haasl, 2000). Numerous fossil species have been assigned to *Antillophos* but future work is needed to separate them into *Tritiaria* and *Antillophos*.

Phos elegans Guppy, 1866, is a name occasionally applied to several of the *Antillophos* described here. It resembles *A. candeanus* more than any other species. However, it is a Miocene species [and not a *nomen dubium* as previously stated (Watters, 2008)].

Antillophos bahamasensis Petuch, 2002
(Figures 41–42, 56)

Antillophos bahamasensis Petuch, 2002: 63–64, figs. 2a, b; Watters, 2008: 5, fig. 1.

Description: Shell 18–20 mm in length (holotype 18 mm in length). Fusiform; spire ca. 60% of total length. Protoconch worn, conical, of ca. 2.25 smooth whorls with evidence of keel at periphery. Teleoconch of 6.5 whorls. Teleoconch whorls sculptured with narrow, widely spaced, flat, spiral cords separated by wide intervals, ca. 17 on last whorl. Interspaces with single, fine, 2° spiral thread. Axial sculpture of widely spaced, low, rounded ribs, ca. 19 on last whorl (excluding varix) and ca. 17 on penultimate whorl. Varices well-developed, about one varix every 1/3–1/4 whorl except for last whorl. Terminal varix low, wide, crossed by numerous axial ribs. Intersections of axial and spiral sculpture form pustulose, ratchet-like sculpture. Aperture elongate-oval, with one plication anteriorly; anal canal set off by two denticles. Outer lip with ca. 16 lirae deep within mouth, with intercalated 2° ones. Columella continuous; parietal lip adherent to previous whorl. Siphonal canal short, open. "Stromboid notch" small and shallow. Holotype somewhat bleached and worn, colored white; paratype in the Petuch collection apparently retains some color as Petuch (2002: 63) stated "color pale tan with 3 darker tan bands and with spire whorls being darker tan." Aperture white. Radula, operculum, and anatomy unknown.

Holotype: UF 277198.

Type Locality: Off Victory Cay, Bimini Chain, Bahamas.

Paratype: Petuch coll., from type locality.

Distribution: Known only from the type locality.

Habitat: Both specimens appear to be dead shells. Although the type locality did not include a bathymetric range, in the discussion of the species is included the statement "depths of 35 m." Substrate unknown.

Etymology: From the Bahamas.

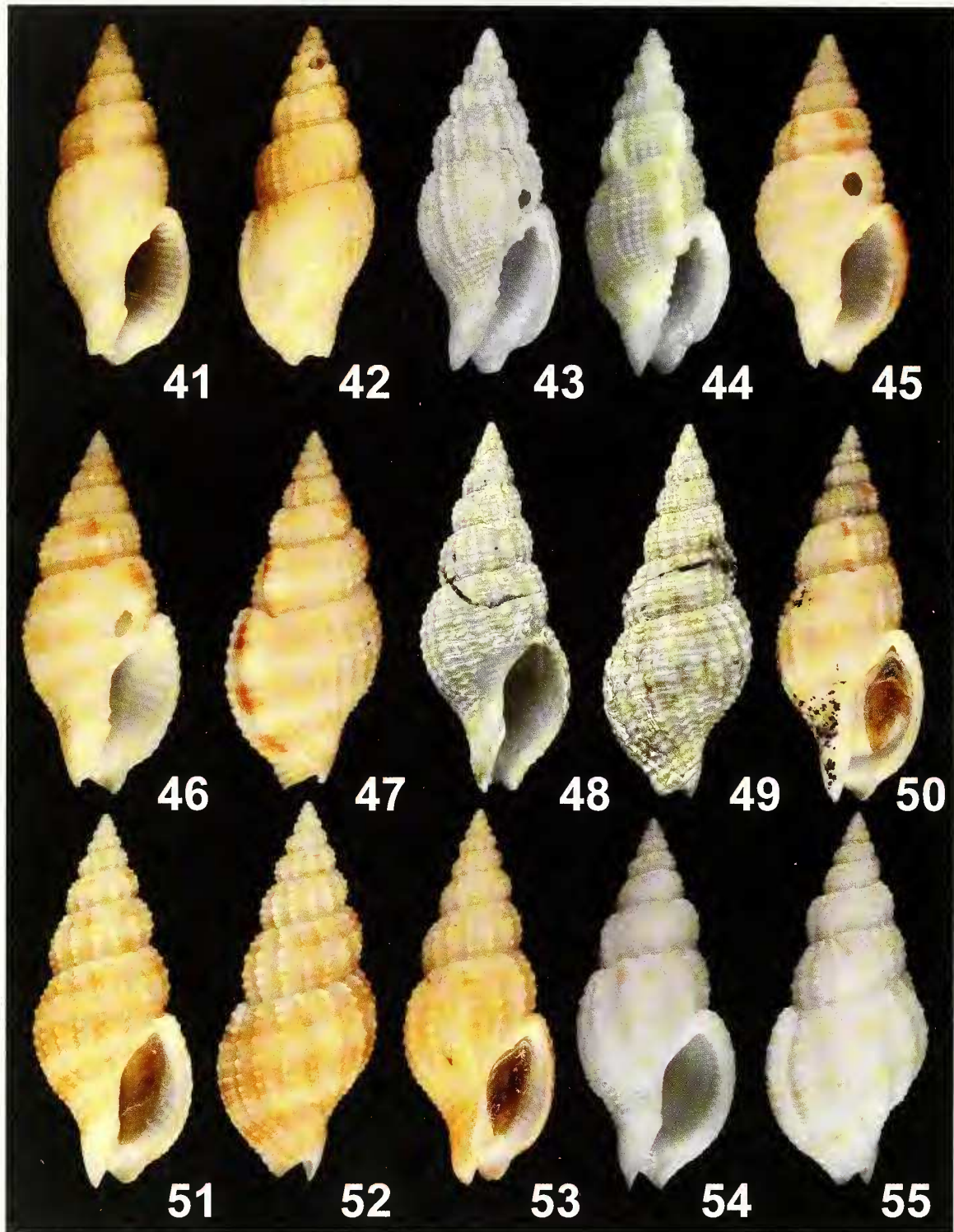
Discussion: The type is a slightly worn, bleached specimen. It is similar to *A. chazaliei*, but more elongate and with finer sculpture. The collection of additional material may eventually necessitate the synonymizing of *A. bahamasensis* with *A. chazaliei*. See Table 3 for a comparison.

Antillophos beauii (Fischer and Bernardi, 1857)
(Figures 57–69)

Phos beauii Fischer and Bernardi, 1857: 358, pl. 12, figs. 8, 9; Tryon, 1881: 219, pl. 84, fig. 533; Kaicher, 1985: No. 4318.
Phos beauii [sic] Fischer and Bernardi, 1857.—Dall, 1889a: 15, 178–179.

Antillophos beauii [sic] (Fischer and Bernardi, 1857).—McGinty and McGinty, 1957: 40; Abbott, 1974: 220; Abbott and Dance, 1982: 167; Watters, 2008: 5, fig. 3.

Description: Average 29.1 mm in length (min, 25.1; max, 31.8). Fusiform; spire ca. 60% of total length. Protoconch minute, brown or purple, conical, of ca. 2.25 smooth whorls with sharp keel at periphery; first whorl



Figures 41–55. *Antillophos* species. **41–42.** *Antillophos bahamasensis* Petuch, 2002. Holotype, UF277198, 18.0 mm. **43–47.** *Antillophos oxyglyptus* (Dall and Simpson, 1901). **43.** Holotype, USNM 159696, 17 mm, photos courtesy of Y. Villacampa (USNM). **44.** Holotype of *Antillophos bayeri* Petuch, 1987, USNM 859854, 17 mm, photos courtesy of Y. Villacampa (USNM). **45.** GTW 9216a, 167–200 m, W Sandy Lane Bay, Barbados, 20.0 mm **46–47.** HGL, 167–200 m, W Sandy Lane Bay, Barbados, 24.3 mm. **48–55.** *Antillophos smithi* (Watson, 1885). **48–49.** Holotype, BM(NH) 1887.2.9.751, 34 mm, photos courtesy of A. MaeLellan (BM(NH)). **50.** HGL, 200–233 m, W Barbados, 36.5 mm. **51–52.** GTW 9163b, 230–260 m, off Roatán Island, Honduras, 30.4 mm. **53.** HGL, 230–260 m, off Roatán Island, Honduras, 31.2 mm. **54–55.** *Antillophos freemani* Petuch, 2002. Holotype, UF 277099, 19 mm.



Figure 56. Distribution of *Antillophos bahamasensis* Petuch, 2002 (bullseye) and *Antillophos chazaliei* (Dautzenberg, 1900) (solid).

partially sunken into subsequent whorls; protoconch not distinctly delimited from teleoconch. Teleoconch of 6.5 whorls. First four teleoconch whorls sculptured with spiral incised grooves; grooves lost on subsequent whorls except for 7–10 grooves on siphonal canal. Axial sculpture of widely spaced low ribs with occasional varices; 9–14 low ribs on last whorl excluding varix. Varices acutely shouldered, may occasionally line up with previous whorls or may be at random. Terminal varix narrow, set back a short distance from outer lip. Last 1–3 whorls nearly smooth, polished. Aperture elongate-oval, with two plications at the siphonal canal; anal canal set off by two denticles. Outer lip with 15–25 fine lirae deep within mouth. Columella continuous; parietal lip adherent to previous whorl. Siphonal canal short, open. “Stromboid notch” wide and shallow. Colored with broad bands of different shades of tan separated by narrow white bands; bands darkest on varices. Aperture white. Operculum leaf-shaped, yellow or tan, with anterior terminal nucleus. Dall (1889: 178–179) described the animal in detail: “The soft parts are white, dotted with blackish toward the middle line of the foot above, and with the end of the siphon very dark brown. The eyes are very large in proportion to the size of the animal, are mounted on large long stout peduncles, from the inner side of the distal end of which proceed very slender acute tentacles. The foot

is large, thin, with an entire edge and pointed linuiform tail-end.” Radula unknown.

Type(s): The specimen illustrated in the original description represents the species universally recognized as *Phos beauii*. Dance (1966) stated that Fischer’s types were housed at BM(NH) and MNNH. No type was found at BM(NH) (*vide* A. MacLellan, pers. comm., 2008). MNNH has a single specimen labeled as a syntype. That specimen is not the same as that depicted in the figure and in fact is an example of the species later called *Phos oxyglyptus* Dall and Simpson, 1901. The original description of *Phos beauii* does not mention multiple specimens and it is uncertain how the MNNH specimen became known as a syntype. If another specimen existed, presumably the illustrated example, it appears to be lost. If we identify *Phos beauii* with the remaining specimen at MNNH then *Phos beauii* becomes a senior synonym of *Phos oxyglyptus*. In addition such action would leave the species now known as *A. beauii* without a valid name. In the interest of taxonomic stability **I designate the original figures (Fischer and Bernardi, 1857: pl. 12, figs. 8, 9; reproduced here, figs. 57, 58) as the lectotype of *Phos beauii*** (see ICZN Recommendations 73F and 74B).

Type Locality: Marie-Galante [E of Guadeloupe]. Collected in fishing traps.

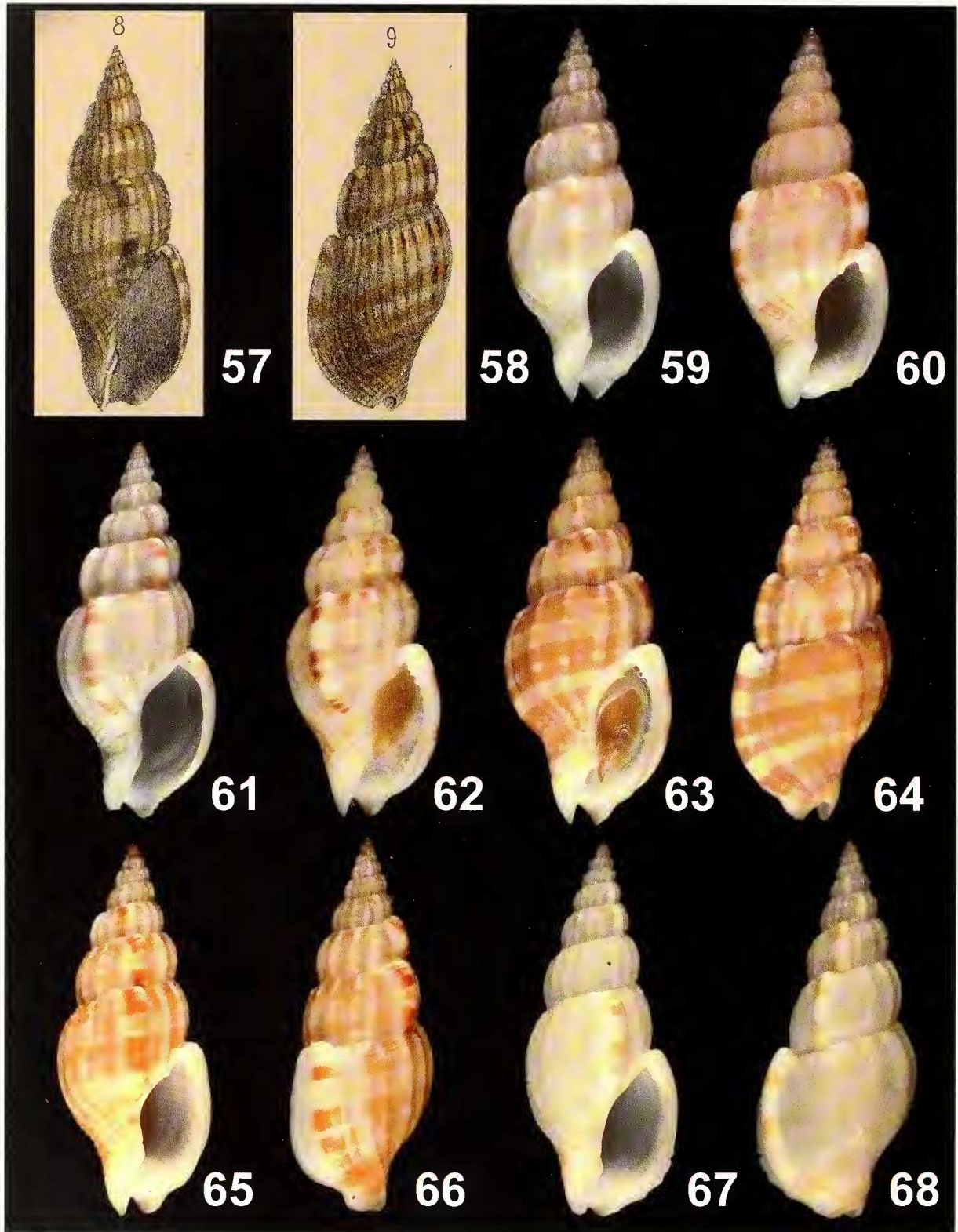
Other Material Examined: Florida. UF 154766, Triton Sta. 83, 30 m, off Palm Beach Pier, Palm Beach Co. Bahamas. EFG 5358, 300 m, 26°49’ N, 77°01’ W. Dominican Republic. GTW 5891d, 200 m, off La Romana. Puerto Rico. HGL, fishtrap, 40–50 m, off Cabo Rojo. Guadeloupe. UF 121284, 160 m, off Port Louis; EFG 7999, traps, 150 m. Barbados. GTW 5891a, 167 m, off St. James; GTW 5891b, 180 m, S shore; GTW 5891c, 180 m, W coast. Colombia. UF 212353, 67–83 m, Guajira Province.

Distribution: Off SE Florida, the Bahamas, the Dominican Republic, Puerto Rico, Guadeloupe, Barbados, and Venezuela. Most specimens in collections are from Barbados.

Habitat: Dead shells are sporadically recorded from 30 m (rare) to 200 m and live specimens have been

Table 3. Shell characteristics of *Antillophos* species.

	Average length (max) mm	# teleoconch whorls	# axial ribs on penultimate whorl	Predominant sculpture on final whorl	# lirations in outer lip
<i>bahamasensis</i>	18	6.5	17	pustulose	16
<i>beauii</i>	29.1 (31.8)	6.5	9–14	nearly smooth	15–25
<i>candeanus</i>	24.1 (31.8)	6.5	12–14	serrate	8–11
<i>chazaliei</i>	12.7 (24.0)	5.5	8–12	serrate	12–14
<i>oxyglyptus</i>	20.4 (24)	6.5	16–18	pustulose	11–12
<i>smithi</i>	28.3 (36.6)	6.5	12–18	pustulose	16–21
<i>verriculum</i>	31.0 (34.0)	6.5	9–17	serrate	12–15
<i>virginiae</i>	23.6 (32.2)	6.5	13–20	pustulose	10–17



Figures 57–68. *Antillophos beaulti* (Fischer and Bernardi, 1857). **57–58.** Lectotype, Fischer and Bernardi, 1857; pl. 12, figs. 8, 9. **59.** UF 121284, 160 m, off Port Louis, Guadeloupe, 26.1 mm. **60.** UF 212353, 67–83 m, Guajira Province, Colombia, 21.5 mm. **61.** UF 154766, 30 m, off Palm Beach Pier, Palm Beach Co., Florida, 22.9 mm. **62.** GTW 5891d, 200 m, off La Romana, Dominican Republic, 28.0 mm. **63–64.** GTW 5891c, 167 m, W Barbados, 30.7 mm. **65–66.** GTW5891b, 180 m, S Barbados, 29.7 mm. **67–68.** HGL, 160–200 m, off Cabo Rojo, Puerto Rico, 31.9.



Figure 69. Distribution of *Antillophos beaui* (Fischer and Bernardi, 1857).

taken in 167–200 m. McGinty and McGinty (1957) reported this species off Palm Beach in 50–60 fathoms on rubble patches and mud. Several specimens (including the holotype) have been caught in baited fishing traps suggesting that the species may be a scavenger.

Etymology: Named after Commander Beau, French “chef de bataillon d’infanterie,” collector in Guadeloupe. Although several species are named after Beau, it does not appear that we know much about him.

Discussion: This beautiful species is the most easily recognized *Antillophos* in the western Atlantic. Its large size, dark protoconch, lack of spiral sculpture on later whorls, and polished appearance immediately set it apart from all others. *Antillophos smithi* is of similar shape and size but is densely sculptured with minute pustules. See Table 3 for a comparison with other species.

Antillophos candeanus (d’Orbigny, 1842)
(Figures 70–85)

Cancellaria candeana d’Orbigny, 1842: pl. 23, figs. 4–6.

Cancellaria candei d’Orbigny, 1847: 129 [unjustified emendation].

Phos antillarum Petit, 1853: 238, 242–243, pl. 8, fig. 9; Tryon, 1881: 219, pl. 84, fig. 531 [in synonymy of *Phos veraguensis* Hinds, 1843]; Dall, 1889a: 179 [in synonymy of *Cancellaria candeana* d’Orbigny, 1842]; Dautzenberg, 1900: 180; Maury, 1922: 58 [in synonymy of *Cancellaria candeana* d’Orbigny, 1842]; Abbott, 1974: 220 [in synonymy of *Cancellaria candeana* d’Orbigny, 1842]; Rios, 1985: 102 [in synonymy of *Cancellaria candeana* d’Orbigny, 1842]. Rios, 1994: 120 [in synonymy of *Cancellaria candeana* d’Orbigny, 1842].

Phos candei (d’Orbigny, 1842).—Arango, 1878: 201; Tryon, 1881: 219 [in synonymy of *Phos veraguensis* Hinds, 1843]; Dall, 1889a: 15, 179 [in part]; Maury, 1922: 58.

? *Phos candei* (d’Orbigny, 1842).—Dall, 1889b: 116–117; Dall and Simpson, 1901: 401; Henderson, 1914: 120.

Antillophos candei (d’Orbigny, 1842).—Abbott, 1954: 231–232 [in part], pl. 25u; Warmke and Abbott, 1961: 115, pl. 21, fig. h; Abbott, 1974: 220 [in part]; Humphrey, 1975: pl. 17, fig. 13; Sarasua and Espinosa, 1984: 8, fig. 4d.

Antillophos cf. adehus (Schwengel, 1942).—Petuch, 1987: pl. 24, figs. 7, 8; Merlano and Hegedus, 1994: 188, fig. 716.

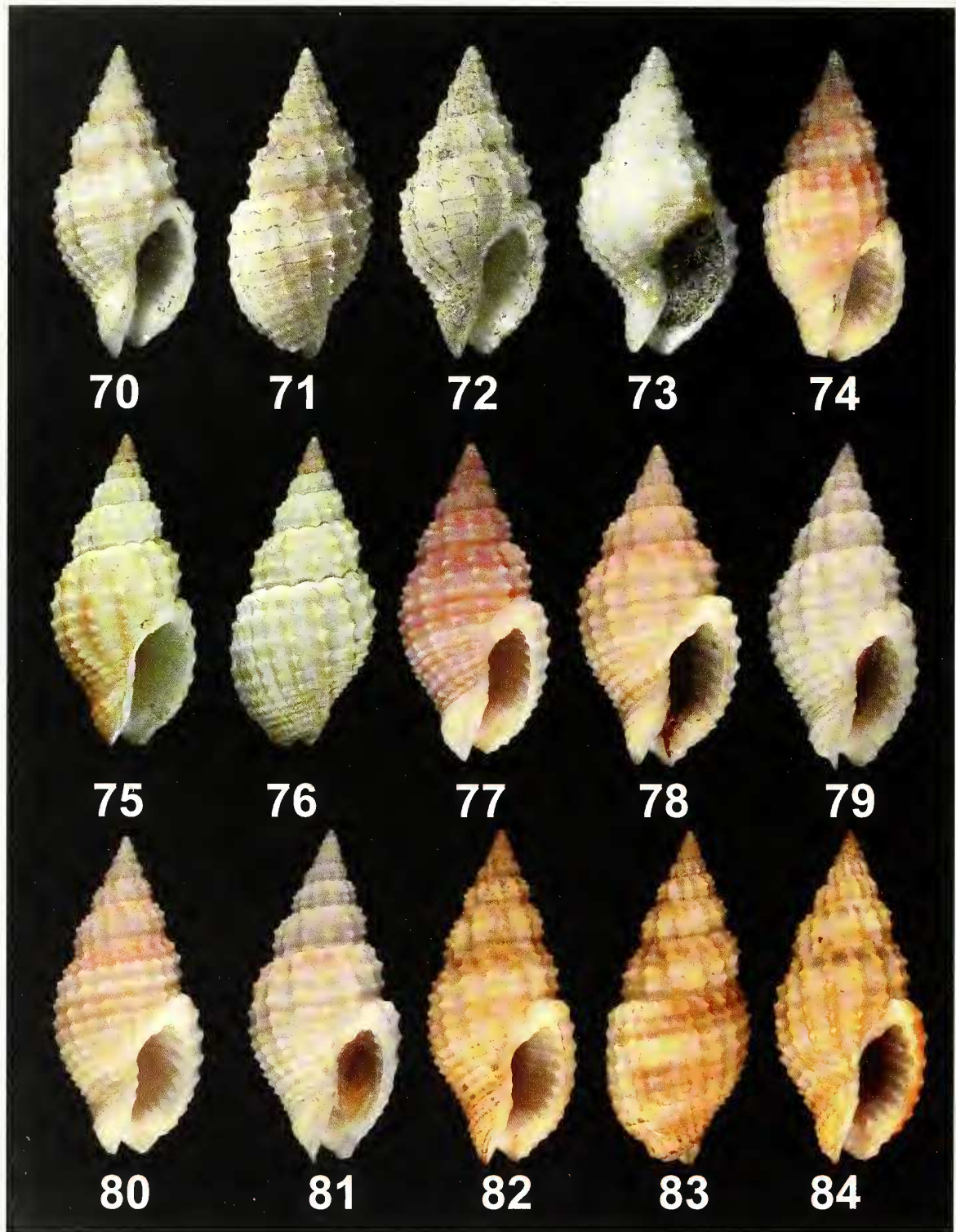
Antillophos candeanus (d’Orbigny, 1842).—Robin, 2008: 182, fig. 7; Watters, 2008: 5, figs. 4, 5.

Description: Average 24.1 mm in length (min, 16.9; max, 31.8). Fusiform; spire ca. 50% of total length. Protoconch minute, white, conical, of ca. 2.25 smooth whorls with sharp keel at periphery; first whorl sunken into subsequent whorls; protoconch not distinctly delimited from teleoconch. Teleoconch of 6.5 whorls. Teleoconch whorls sculptured with weak, narrow, widely spaced spiral cords separated by incised grooves; ca. 12 cords on last whorl. Axial sculpture of widely spaced, low, rounded ribs separated by concave spaces; ca. 12 ribs on last whorl, excluding varix, and 12–14 ribs on penultimate whorl. Previous varices absent or not differentiated from axial sculpture. Terminal varix low, not well-differentiated, very wide, crossed by numerous axial ribs. Intersections of axial and spiral sculpture form ratchet-like, posterior pointing serrations. Aperture elongate-oval, with 2–3 weak plications at siphonal canal, anal canal set off by two weak denticles. Outer lip with 8–11 lirae deep within mouth. Columella continuous; parietal lip adherent to previous whorl. Siphonal canal short, open. “Stromboid notch” small but deep. Colored white or off-white with three vague tan or pinkish bands below suture, below periphery, and on siphonal canal, bands darkest on varices, or all serrations tinged with tan, or with dark subsutural band. Aperture white or faintly purple. Operculum rhomboid, yellow or tan, with anterior terminal nucleus. Dall (1889: 179) described the animal: “The soft parts and operculum are exactly like those of *Phos beaui*, but there is less of the blackish dotting, even the siphon has not much.” Radula unknown.

Types: *Cancellaria candeana* d’Orbigny, 1842, syntypes BM(NH) 1854.10.4.349, 3 shells, 13, 19, 22 mm length; *Phos antillarum* Petit, 1853, syntype MNHN, unnumbered, 1 shell, 28.5 mm length (listed as holotype by Fischer-Piette, 1950: 15).

Type Locality: (*candeanus*) Martinique; (*antillarum*) La Guayra (América meridionale) [La Guajira, Venezuela].

Other Material Examined: Florida. UF 239638, Palm Beach, Palm Beach Co.; UF 150998, 5 m, off Treasure Island, North Inlet, Palm Beach, Palm Beach Co.; UF 12724, 7.5 m, Lake Worth Inlet, Palm Beach Co.; BMSM 8098, Lake Worth, Palm Beach Co.; UF 12726, 40 m, off Delray Water Tank, Palm Beach Co.; BMSM 38499, Pompano Beach, Broward Co.; UF 157578, 20 m, Pompano Beach fill, Broward Co; EFG 19335, 20–27 m, off Dania, Broward Co.; HGL, dredged near Fowey Rocks, Miami-Dade Co.; FMNH 249643, 80 m, SW of Sombrero Light, Monroe Co.; GTW 12722i, 42 m, near Sombrero Light, Monroe Co; FMNH 170993, 100 m, off Dry Tortugas; UF 126253, 40 m, off Key West, Monroe Co.; EFG 8011, 400 m, off Florida Keys; UF 126252, 50 m, NE of Dry Tortugas, 25°00’ N; UF 170845, off SW Florida, 14 m, 25°00’ N,



Figures 70–84. *Antillophos candeanus* (d'Orbigny, 1842). **70–73.** Syntypes of *Cancellaria candeanus* d'Orbigny, 1842, BM(NH) 1854.10.4.349, photos courtesy of A. MacLellan (BM(NH)). **70–71.** 13 mm. **72.** 19 mm. **73.** 22 mm. **74.** HGL, 100 m, N coast of Tobago, 27.4 mm. **75–76.** *Phos antillarum* Petit, 1853, syntype MNHN, unnumbered, 28.5 mm. **77.** UF 281266, Scarborough, Tobago, 24.4 mm. **78.** UF 158171, 25 m, Grand Mal Bay, Grenada, 22.1 mm. **79.** UF 126253, 40 m, off Key West, Monroe Co., Florida, 27.5 mm. **80.** UF 239635, Puerta Plata, Dominican Republic, 30.1 mm. **81.** UF 171240, 60 m, off Naples, Collier Co., Florida, 28.4. **82–83.** CTW 4331a, 240 m, off Matanzas, Matanzas Province, Cuba, 31.8 mm. **84.** HGL, 20 m, off Cap Salomon, Martinique, 28.4 mm.



Figure 85. Distribution of *Antillophos candeanus* (d'Orbigny, 1842).

Monroe Co.?: BMSM 8099, Florida Straits; UF 261578, 52 m, Gulf of Mexico, 25°40'–25°20' N, Monroe Co.?: UF 260953, 50–60 m, Gulf of Mexico, 25°00'–26°00' N, Monroe Co.?: UF 260194, 50–60 m, Gulf of Mexico, 25°40' N, Monroe Co.?: UF 260836, 130–140 m, Gulf of Mexico, 25°31' N, Monroe Co.?: UF 258981, 68 m, W coast of Monroe Co., 24°04' N; UF 171240, 60 m, off Naples, 26°10' N, Collier Co.; UF 260852, W of Sarasota, Sarasota Co.; OSUM 3490, 117 m, off St. Petersburg, Pinellas Co. Bahamas. UF 176628, 2–12 m, S Cat Cay, Bimini. Cuba. UF 266940, Guamuhaya, Sancti Spiritus Province; UF 266953, Varadero, Matanzas Province; UF 126256, 266952, both 60 m, off Matanzas Bay, Matanzas Province; GTW 4331a, 240 m, Matanzas, Matanzas Province. Dominican Republic. UF 187500, 239635, 383455, all Puerto Plata; GTW 12722c, in fish nets, 42 m, off Las Salinas; UF 352849, 30–40 m, off Punta Ocoa; UF 171516, Santo Domingo. Puerto Rico. HGL, harbor dredging, W central shore of San Juan Harbor; UF 164327, 100 m, Punta Jiguero; UF 154750, 163095, both Mayaguez Harbour; UF 163094, Mayaguez Dock; UF 126249, Ponce Bay. US Virgin Islands. UF 362721, Water Island. British Virgin Islands. GTW 12722g, GTW 12722h, both 1 m, West End, Tortola. Martinique. GTW 12722b, 25 m, near Grande Anse; HGL, 20 m, off Cap Salomon. Grenada. UF 158171, 25 m, Grand Mal Bay. Trinidad and Tobago. HGL, in fish pot, 100 m, off N coast, Tobago; UF 281266, 352850, both Scarborough, Tobago. Honduras. Phil Fallon coll. 10809233, 30–38 m, SE of Morat Island, off E end of Roatán Island BMSM 8102, “Caribbean Sea.”

Distribution: Recorded from the southern half of Florida through the Greater and Lesser Antilles, one record each from the Bahamas, Honduras, and Venezuela. Dall (1889b) listed “*Phos candei*” from Hatteras, North Carolina, but this seems to be a reference to *A. virginiae*, based on other records.

Habitat: Dead shells have been found in depths from 5 to 240 m, but most records are from 20–60 m. Live and freshly dead specimens have been taken in 8–40 m.

It lives in somewhat shallower water than *A. virginiae*. It appears to be locally common; over 50 specimens have been taken in a single sample. Substrate unknown.

Etymology: Named after Ferdinand de Candé (1801–1867), Cuban naturalist and contemporary of d'Orbigny.

Discussion: The misused name “*candeanus/candei*” is the most commonly applied *nomen* for nearly any western Atlantic *Antillophos*. This species is easily differentiated from all others by its medium size, solid bullet-shape, coarse serrate sculpture, and fewer lirae inside the outer lip. The commonly confused *A. virginiae*, *A. oxyglyptus*, and *A. smithi* all have much finer sculpture that is more nodulose than serrate. *Antillophos chazalici* resembles a miniature version of *A. candeanus*, often being half the size or less of *A. candeanus*. Although *A. candeanus* does rarely occur in south Florida, the commonly dredged species there almost universally referred to as “*candeanus*” is actually *A. virginiae*. See Table 3 for a comparison with other species.

Antillophos chazalici (Dautzenberg, 1900)
(Figures 56, 86–100)

Phos candei (d'Orbigny, 1842).—Tryon, 1881: pl. 84, fig. 534 [misidentification]; Dall, 1889a: 179 [in part].

Phos chazalici Dautzenberg, 1900: 181–182, pl. 9, fig. 7.

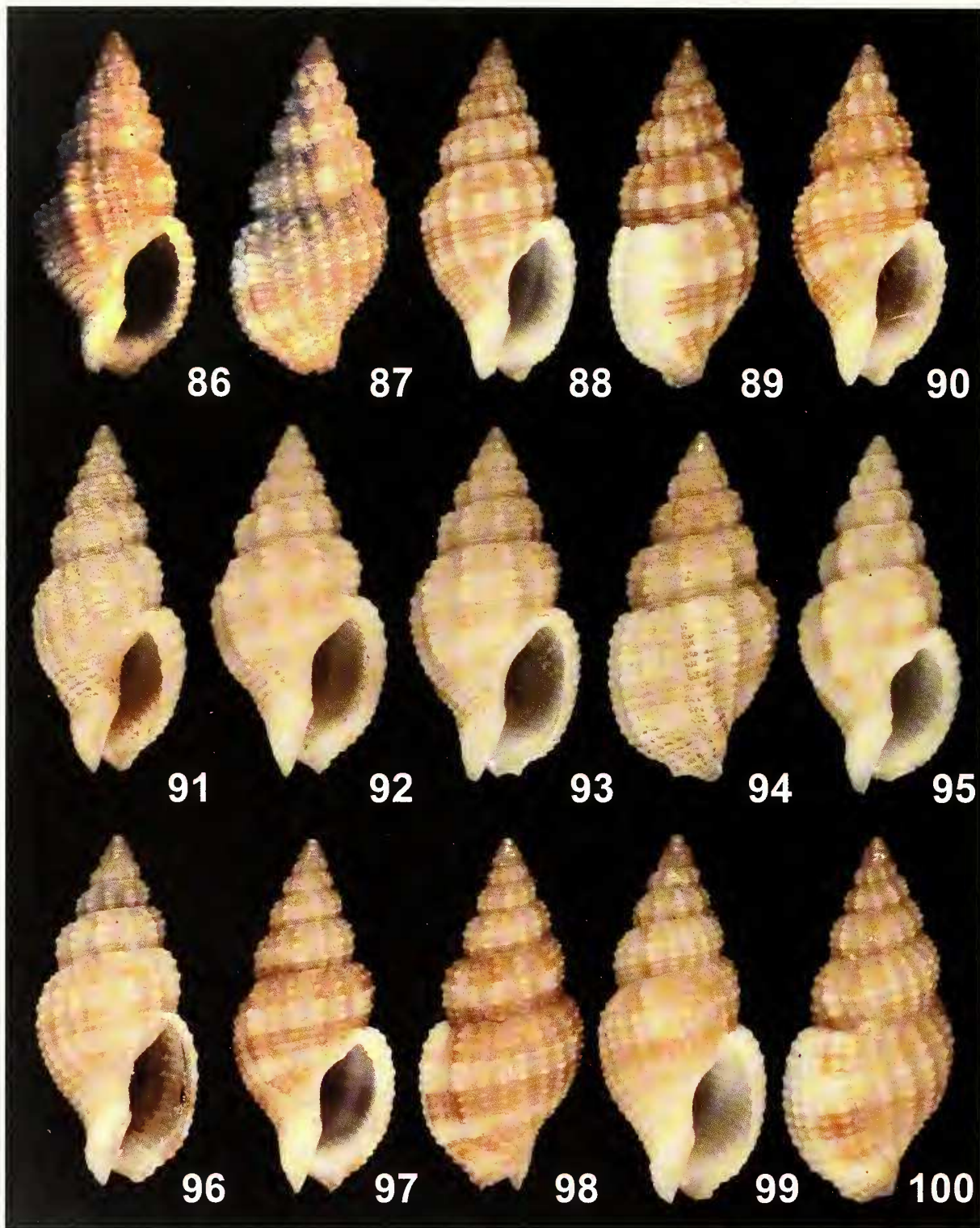
Bailya parva (Adams, 1850).—Merlano and Hegedus, 1994: 186, fig. 705 [misidentification].

Antillophos candei (d'Orbigny, 1842).—Abbott, 1974: 220 [in part], fig. 2425 [misidentification]; Merlano and Hegedus, 1994: 188, fig. 714 [misidentification].

Antillophos chazalici (Dautzenberg, 1900).—Merlano and Hegedus, 1994: 188, fig. 715; Watters, 2008: 5, figs. 6, 7; García, 2008b: 4, fig. 15.

Antillophos elegans (Guppy, 1866).—Petuch, 1987: 89, pl. 24, figs. 9, 10; Merlano and Hegedus, 1994: 188, fig. 717 [misidentification].

Description: Average 12.7 mm in length (min, 9.6; max, 24.0 [exceptional]). Fusiform; spire ca. 50–60% of total length. Protoconch minute, tan, conical, of ca. 2.25 smooth whorls with sharp keel at periphery; first whorl is sunken into subsequent whorls; protoconch not distinctly delimited from teleoconch. Teleoconch of 5.5 whorls. Teleoconch whorls sculptured with widely spaced 1° spiral cords, ca. 12 on last whorl, excluding varix. 2° spiral sculpture of single thread present between 1° cords. Axial sculpture of widely spaced, low, rounded ribs separated by concave spaces; ca. 15 ribs on last whorl and 8–12 ribs on penultimate whorl. Previous varices very low or not differentiated from axial sculpture. Terminal varix low, thick, very wide, crossed by numerous axial ribs. Intersections of axial and spiral sculpture form posterior-pointing serrations. Aperture elongate-oval, with 2 plications at siphonal canal, anal canal set off by two weak denticles. Outer lip with 12–14 lirae deep within mouth. Columella continuous; parietal lip adherent to previous whorl. Siphonal canal short, open. “Stromboid notch” small and shallow. Colored off-white with tan bands below suture, below periphery.



Figures 86–100. *Antillophos chazalici* (Dautzenberg, 1900). **86–87.** Holotype, Institute royal des Sciences naturelles de Belgique, unnumbered, 12 mm, photo courtesy Th. Hubin RBINS. **88–89.** GTW 4331g, 40 m, Isla Los Monjes, Colombia, 16.7 mm. **90.** GTW 4331f, 160 m, off La Romana, Dominican Republic, 14.7 mm. **91.** UF 186254, SW of Sombrero Key Light, Monroe Co., Florida, 16.6 mm. **92.** UF 164326, 100 m, Punta Jiguero, Puerto Rico, 12.8 mm. **93–94.** UF 381597, 53 m, 20.84° N, 92.32° W, Campeche, Mexico, 14.6 mm. **95.** HGL, 250–300 m, off Isla Eseudo de Veraguas, Panama, 14.3 mm. **96.** HGL, 71–74 m, off Louisiana, 15.1 mm. **97–98.** GTW 13749a, 37–46 m, Islas Los Testigos, Venezuela, 15.3 mm. **99–100.** GTW 4331d, 43 m, Punta Espada, La Guajira, Colombia, 14.4 mm.

and on siphonal canal; bands darkest on varices. Aperture white. Operculum leaf-shaped, pale yellow, with anterior terminal nucleus. Radula and anatomy unknown. García (2008b: fig. 15) illustrated a living specimen.

Holotype: Institute royal des Sciences naturelles de Belgique.

Type Locality: Iles Testigos, [*Chazalie*] Stn. 26; Santa Marta, Stns. 42 et 44 [Venezuela]. It is not clear from which of the two localities the holotype originated.

Other Material Examined: Florida. UF 203973, 150 m, off Breakers, TRITON Sta. 131, Palm Beach, Palm Beach Co.; UF 204115, 120 m, off Breakers, TRITON Sta. 111 and 112, Palm Beach, Palm Beach Co.; UF 222924, 150 m, off Breakers, TRITON Sta. 188-191, Palm Beach, Palm Beach Co.; UF 221840, 60 m, S of Palm Beach Pier, TRITON Sta. 392-394, Palm Beach Co.; UF 205502, 225 m, off Palm Beach, TRITON Sta. 18 and 19, Palm Beach Co.; UF 266956, 240 m, off Hillsboro Beach, Broward Co.; UF 425827, 130 m, Egmont Key, Tampa, Hillsborough Co.; FMNH 249643, 80 m, SW of Sombbrero Light, Monroe Co.; UF 186254, SW of Sombbrero Light, Monroe Co.; GTW 4331c, 60–75 m, W of Cedar Keys, Monroe Co. Louisiana. HGL, 71–74 m, 28°03' N, 92°27' W; UF 381550, EFG 26675, both 86–91 m, 28°01' N, 92°28' W; EFG 23207, 89–92 m, 28°07' N, 90°58' W; EFG 24384, 99.3 m, 28°06' N, 91°02' W; EFG 25054, wreck of the tanker HALO, 80 km off SW Pass, 28°17' N, 89°58' W. Mexico. UF 381634, EFG 26122, both 93–94 m, 20°51' N, 92°26' W, Campeche; UF 381597, EFG 26107, both 53 m, 20°50' N, 92°19' W, Campeche; UF 381598, 52–53 m, 20°46' N, 92°13' W, Campeche; UF 381582, 73–77 m, 20°00' N, 92°26' W, Campeche; EFG 26017, 107–108 m, 22°16' N, 91°30' W, Campeche. Panama. HGL, 50 m, algac, Panama; HGL, 250–300 m, off Isla Escudo de Veraguas; HGL, 250 m, mud, San Blas Islands; GTW 4331h, 120 m, San Blas Islands; GTW 4331e, 130 m, San Blas Islands. Cuba. UF 425821, Guamuhaya, Sancti Spíritus Province, Dominican Republic. GTW 4331f, 160 m, muddy bottom, off La Romana. Puerto Rico. UF 164325, 164326, both 100 m, Punta Jiguero. Venezuela. GTW 13749a, 37–46 m, Islas Los Testigos. Colombia. Phil Fallon coll. 10210090, 40 m, Punta Espada, La Guajira, Colombia; GTW 4331d, 43 m, trawled, Punta Espada, Guajira Peninsula; HGL, 60–80 m, Guajira Peninsula; GTW 4331g, Phil Fallon coll. 10402120, both 40 m, trawled, Islas los Monjes; HGL, 67 m, Cabo de La Vela; GTW 13749b, 60–80 m, Cabo de La Vela.

Distribution: Widely but sporadically recorded from the Gulf of Mexico and Caribbean Sea.

Habitat: Dead shells are found at depths of 40–240 m; live specimens are known from 50–200 m. Fresh-dead specimens have been dredged in mud. García (2008b: 4) described its habitat on the pinnacles off Louisiana as “a combination of sediment and rubble, as well as in finer sediment at the edge of pinnacles.”

Etymology: Named after the yacht CHAZALIE, the research ship that dredged the type material.

Discussion: This is the smallest species of the western Atlantic *Antillophos* and has largely been forgotten. It resembles a miniature *A. candeanus* or *A. virginiae* and has one fewer whorl as an adult than those species (5.5 vs. 6.5), but possesses a characteristic wide terminal varix. Neither *A. candeanus* nor *A. virginiae* have any previous varix at 5.5 whorls, whether a terminal varix or not. Dall (1889: 179) recognized this species prior to its description by Dautzenberg: “There is a small variety of [*candeanus*] which is brighter colored and more finely sculptured. . .” but he ultimately considered it only a variety of *candeanus*. See Table 3 for a comparison with other species.

Antillophos oxyglyptus (Dall and Simpson, 1901)
(Figures 43–47, 101)

Phos oxyglyptus Dall and Simpson, 1901: 401–402, pl. 57, fig. 18; Abbott, 1974: 220 [in synonymy of *Cancellaria candeana* d'Orbigny, 1842]; Rios, 1994: 120, pl. 39, fig. 508 [in synonymy of *Cancellaria candeana* d'Orbigny, 1842].

Antillophos virginiae (Schwengel, 1942).—Rios, 1970: 89, pl. 26, middle right [misidentification].

Antillophos candei (d'Orbigny, 1842).—Rios, 1975: 93, pl. 27, fig. 384; Rios, 1985: 101–102, pl. 35, fig. 444; Petuch, 1987: pl. 24, fig. 6; Rios, 1994: 120, pl. 39, fig. 508 [all misidentifications].

Antillophos oxyglyptus [*sic*] (Dall and Simpson, 1901).—Rios, 1975: 93 [in synonymy of *Cancellaria candeana* d'Orbigny, 1842].

Antillophos bayeri Petuch, 1987: 102–103, pl. 24, figs. 4, 5; Kaicher, 1990: No. 5863; Merlano and Hegedus, 1994: 188, fig. 713.

Antillophos oxyglyptus (Dall and Simpson, 1901).—Watters, 2008: 5, fig. 2.

Description: Average 20.4 mm in length (min, 17.0; max, 24). Fusiform; spire ca. 50% of total length. Proto-

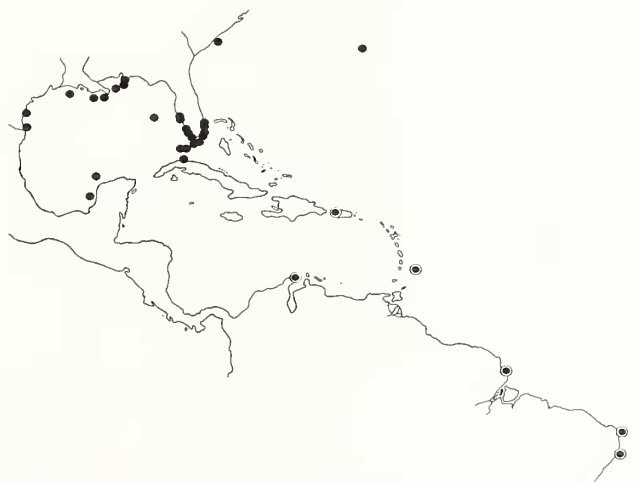


Figure 101. Distribution of *Antillophos oxyglyptus* (Dall and Simpson, 1901) (bullseye) and *Antillophos virginiae* (Schwengel, 1942) (solid).

conch minute, white, conical, of ca. 2.25 smooth whorls with sharp keel at periphery; first whorl is sunken into subsequent whorls; protoconch not distinctly delimited from teleoconch. Teleoconch of 6.5 whorls. Teleoconch whorls sculptured with narrow, widely spaced, flat, spiral cords separated by wide intervals, ca. 17 on last whorl. Interspaces with a single, fine, 2° spiral thread. Axial sculpture of widely spaced, low, rounded ribs separated by concave spaces; 16–18 ribs on last whorl (excluding varix) and ca. 16 on penultimate whorl. Varices well-developed, about one varix every 1/3 whorl except for last whorl. Terminal varix low, very wide, crossed by numerous axial ribs. Intersections of axial and spiral sculpture form pustulose sculpture. Aperture elongate-oval, with 2–5 denticles or plications anteriorly; anal canal set off by two denticles. Outer lip with 11–12 lirae deep within mouth. Columella continuous; parietal lip adherent to previous whorl. Siphonal canal short, open. “Stromboid notch” small but deep. Colored white or off-white with three vague tan bands below suture, below periphery, and on siphonal canal, bands darkest on varices. Aperture white. Radula, operculum, and anatomy unknown.

Types: *Phos oxyglyptus* Dall and Simpson, 1901, holotype USNM 159696, listed as USNM 159676 in Boss et al. (1968) in error (*vide* Y. Villacampa, pers. comm., USNM, 2008); *Antillophos bayeri* Petuch, 1987, holotype USNM 859854.

Type Locality: (*oxyglyptus*) Mayaguez, Porto Rico. No bathymetric information was given; (*bayeri*) trawled by commercial shrimp trawler from 35 m depth off Cabo [de] La Vela, Guajira Peninsula, Colombia.

Paratypes: *Phos oxyglyptus* Dall and Simpson, 1901, a second specimen was indicated in the original description but has not been located; *Antillophos bayeri* Petuch, 1987, 1 shell, Robert Pace collection.

Other Material Examined: Barbados. HGL, GTW 9216a, 167–200 m, both dredged, silt, sand, coral rubble, 3.2 km W of Sandy Lane Bay, St. James. Colombia. USNM 859854, 35 m depth off Cabo de La Vela, Guajira Peninsula [holotype of *bayeri*].

Distribution: The actual range of this rare species is difficult to determine based on the scarcity of material, all dead shells, but it occurs at least from Puerto Rico to the Caribbean coast of Colombia and offshore to Barbados. Rios (1970, 1975) listed this species (as *A. virginiae* in 1970, as *A. candei* in 1975) from several locations off NE Brazil from Amapá to Alagoas states.

Habitat: Dead shells have been found in depths from 35–200 m on silt, sand, and coral rubble; Rios (1970) reported it from 60–80 m on a calcareous algal substrate.

Etymology: Gr. *oxys*, sharp + Gr. *glyptos*, carved.

Discussion: The type specimen is a faded, small individual, but clearly depicts the columellar denticles characteristic of this species. This species is very similar to

the Gulf of Mexico species *Antillophos virginiae* in sculpture and apertural features. It has fewer axial ribs on the penultimate whorl than *A. virginiae* (16 vs. 20) and (so far) is separated from *A. virginiae* by a considerable distance. As with *A. virginiae*, the number and strength of the columellar denticles varies considerably. See Table 3 for a comparison with other species.

Antillophos smithi (Watson, 1885)
(Figures 48–55, 102)

Phos smithi Watson, 1885: 221, pl. 17, figs. 7a,b; Rios, 1975: 93, pl. 27, fig. 383; Rios, 1985: 102, pl. 35, fig. 445; Kai-cher, 1990: No. 5871; Rios, 1994: 121, pl. 39, fig. 513.

Antillophos sp. Redfern, 2001: 92, pl. 43, figs. 390a, b.

Antillophos freemani Petuch, 2002: 64, 66, figs. 2c, d.

Antillophos smithi (Watson, 1885).—Watters, 2008: 5, fig. 8.

Description: Average size 28.3 mm in length (min, 21.7; max, 36.6). Fusiform; spire ca. 60% of total length. Protoconch minute, white, conical, of ca. 2.25 smooth whorls with sharp keel at periphery; first whorl is sunken into subsequent whorls; protoconch not distinctly delimited from teleoconch. Teleoconch of 6.5 whorls. Teleoconch whorls sculptured with flat, 1° spiral cords separated by incised grooves, ca. 16 cords on last whorl. 2° and occasional 3° spiral sculpture present in 1-2-3-1 or 1-2-1 pattern. Axial sculpture of widely spaced, low, rounded ribs separated by concave spaces; 13–18 ribs on last whorl, excluding varices, and 12–18 ribs on penultimate whorl. Previous varices present or absent, often one every ¾ whorl. Terminal varix narrow, set back a short distance from outer lip. Intersections of axial and spiral sculpture form low pustules. Aperture elongate-oval, with two weak plications at the siphonal canal; anal canal set off by two denticles. Outer lip with 14–21 fine lirae deep within mouth; lirae may be pustulose in some specimens. Columella continuous; parietal lip adherent to previous whorl. Siphonal canal short, open. “Stromboid notch” wide and shallow. Colored off-white with wide tan bands below suture, below periphery, and on siphonal canal; bands darkest on varices. Aperture white.



Figure 102. Distribution of *Antillophos smithi* (Watson, 1885) (solid) and *Antillophos verriculum* new species (bullseye).

Operculum leaf-shaped, yellow to dark brown, with anterior terminal nucleus. Radula and anatomy unknown.

Holotypes: *Phos smithi* Watson, 1885, BM(NH) 1887.2.9.751, 35 mm; *Antillophos freemani* Petuch, 2002, UF 277099, 25.6 mm.

Type Locality: (*smithi*) Sta. 221. Lat. 9°5' S, long. 34°50' W, off Pernambuco [State]. 350 fathoms [690 m]. Mud. [Brazil]; (*freemani*) [7 km SW] off Victory Cay, Bimini Chain, Bahamas.

Paratypes: *Antillophos freemani* Petuch, 2002, UF 277100, 3 shells, 25.6, 23.0, 19.6 mm; Petuch coll., 22 mm; Freeman coll., 26 mm; each 1 shell, all from the type locality.

Other Material Examined: Bahamas. UF 277099, 7 km SW of Victory Cay, Bimini; GTW 12864a, 250–300 m, off Great Guana Cay, Exumas; Bahamas; EFG 5358, 300 m, 26°49' N, 77°01' W; CR 4910, 13958, both 295 m, off Guana Cay, Abaco, 26°47' N, 77°09' W. Honduras. GTW 9163a, dredged 150 m, off Isla de Utila; GTW 9163b, baited traps, 230–260 m, off Roatán Island; HGL, 230–250 m, E Roatán Island. British Virgin Islands. GTW 9163c, fish pot at 7.5 m, Anegada; GTW 9163d, crabbed, 1 m, Soper's Hole, W end Tortola. Guadeloupe. UF 121214, 160 m, off Port Louis; MNHN, part of syntype lot of *A. beauii*, Marie-Galante. Barbados. HGL, 200–230 m, W of Barbados; HGL, 167–200 m, 3.3 km W Sandy Lane Bay, St. James. Surinam. EFG 5356, 236 m, 7°28' N, 54°35' W Colombia. EFG 19318, 280 m.

Distribution: There are scattered records of this species from the Bahamas throughout the Caribbean to Pernambuco State, Brazil. Specimens from Colombia have been sold to private collectors but the final disposition of these specimens is unknown.

Habitat: This is a fairly deep-water species with dead shells occurring mainly from 150–300 m (rarely crabbed from 7.5 m). Live specimens have been recorded from 150–260 m. Some have been collected in baited traps. Substrate unknown.

Etymology: “I have given it the name of Mr Edgar A. Smith whose ever kind help I have repeatedly had to appeal to” (Watson, 1886: 221). Smith was a contemporary of Watson at the British Museum.

Discussion: *Antillophos smithi* is based on a slightly immature type specimen. It is a rare, fairly deep-water species with a broad distribution but few records. It seems to have been forgotten by later writers. This large, handsome species is often referred to as “*Phos elegans* Guppy, 1866,” a Miocene species. *Antillophos smithi* most closely resembles *A. beauii* in its large size and elongate shell, but differs in its pustulose sculpture in contrast to *A. beauii*'s polished surface. *Antillophos freemani* Petuch, 2002, is a pale, weakly sculptured variant from the Bahamas. Specimens from South America are

more coarsely sculptured than more northerly populations. See Table 3 for a comparison with other species.

Antillophos verriculum new species
(Figures 102–107)

Antillophos candei (d'Orbigny, 1842).—Merlano and Hegedus, 1994: 188, fig. 714 [misidentification].

Antillophos sp.—Watters, 2008: 5, fig. 11.

Description: Shell 24.6–34.0 mm in length (holotype 31.6 mm in length). Fusiform; spire ca. 50–60% of total length. Protoconch minute, golden, conical, of ca. 2.25 smooth whorls with sharp keel at periphery; first whorl is sunken into subsequent whorls; protoconch not distinctly delimited from teleoconch. Teleoconch of 6.5 whorls. Teleoconch whorls sculptured with widely spaced, weak, narrow spiral cords, ca. 17 cords on last whorl. Axial sculpture of widely-spaced, low, rounded ribs, 9–17 ribs on last whorl (excluding varix) and ca. 16 ribs on penultimate whorl. Previous varices absent or scarcely differentiated from axial sculpture. Terminal varix low, very wide, with numerous axial ribs. Intersections of axial and spiral sculpture form posterior-pointing serrations. Aperture elongate-oval, with two weak plications at siphonal canal; anal canal delimited by weak denticles. Outer lip with ca. 15 lirae deep within mouth. Columella continuous; parietal lip adherent to previous whorl. Siphonal canal short, open. “Stromboid notch” small but deep. Colored white with vague tan bands below suture, below periphery, and on siphonal canal, bands darkest on varices. Aperture white. Operculum, radula, and anatomy unknown.

Holotype: UF 425835 (ex GTW).

Type Locality: 40 m, trawled, Punta Espada, Guajira Peninsula, Colombia.

Paratype: BMSM 17976, from the type locality (ex GTW).

Other Material Examined: Phil Fallon coll., 1 shell, from the type locality.

Distribution: Known only from the type locality.

Habitat: The type material, from 40 m, appears freshly dead. Substrate unknown.

Etymology: Latin *verriculum*, a seine, in reference to the texture of the sculpture; a neuter noun in apposition.

Discussion: This species is most similar to *Antillophos candeanus* but differs in having the axial ribs more serrate and farther apart and in having fewer lirations within the outer lip (11 vs. 15). None of the few specimens of *A. verriculum* have columellar denticles or lirae on the middle portion of the columella. *Antillophos verriculum* is a much thinner shell than *A. candeanus*, is more tabulate, and the aperture is more capacious. Most specimens have a rust-colored stain. See Table 3 for a comparison with other species.

Antillophos virginiae (Schwengel, 1942)
(Figures 101, 108–117)

Tritiaria (*Antillophos*) *virginiae* Schwengel, 1942: pl. 3, figs. 6, 7 [July], 65–66 [Oct.] [the captioned plate was published prior to the text description]; Abbott, 1974: 220 [in synonymy of *Cancellaria candeana* d'Orbigny, 1842]; Rios, 1985: 102 [in synonymy of *Cancellaria candeana* d'Orbigny, 1842]; Rios, 1994: 120 [in synonymy of *Cancellaria candeana* d'Orbigny, 1842].

Antillophos virginica [sic] (Schwengel, 1942).—Rios, 1975: 93 [in synonymy of *Cancellaria candeana* d'Orbigny, 1842].

Antillophos caudei (d'Orbigny, 1842).—Vokes and Vokes, 1983: 26, pl. 14, fig. 22 [misidentification].

Antillophos bayeri Petuch, 1987.—Robin, 2008: 182, fig. 5 [misidentification].

Antillophos virginiae (Schwengel, 1942). Watters, 2008: 5, figs. 9, 10; García, 2008b: 8, fig. 16.

Description: Average 23.6 mm in length (min, 18.7; max, 32.2). Fusiform; spire ca. 50–60% of total length. Protoconch minute, white, conical, of ca. 2.25 smooth whorls with a sharp keel at periphery; first whorl is sunken into subsequent whorls; protoconch not distinctly delimited from teleoconch. Teleoconch of 6.5 whorls. Teleoconch whorls sculptured with widely spaced 1° spiral cords, ca. 15 cords on last whorl. 2° spiral sculpture of 2–4 threads between primaries. Axial sculpture of widely spaced, low, rounded ribs, ca. 14 ribs on last whorl, excluding varix, and 13–20 ribs on penultimate whorl. Previous varices very low, few. Terminal varix low, thick, very wide, crossed by numerous axial ribs. Intersections of axial and spiral sculpture form posterior-pointing serrations. Aperture elongate-oval, with 2–4 plications at the siphonal canal; anal canal with strong parietal tooth. Outer lip with 10–17 lirae deep within mouth. Columella continuous; parietal lip adherent to previous whorl. Siphonal canal short, open. “Stromboid notch” wide and shallow to deep. Colored uniformly white or with vague tan bands below suture, below periphery, and on siphonal canal, bands darkest on varices. Aperture white. Operculum leaf-shaped, yellow or reddish, with anterior terminal nucleus. Radula and anatomy unknown.

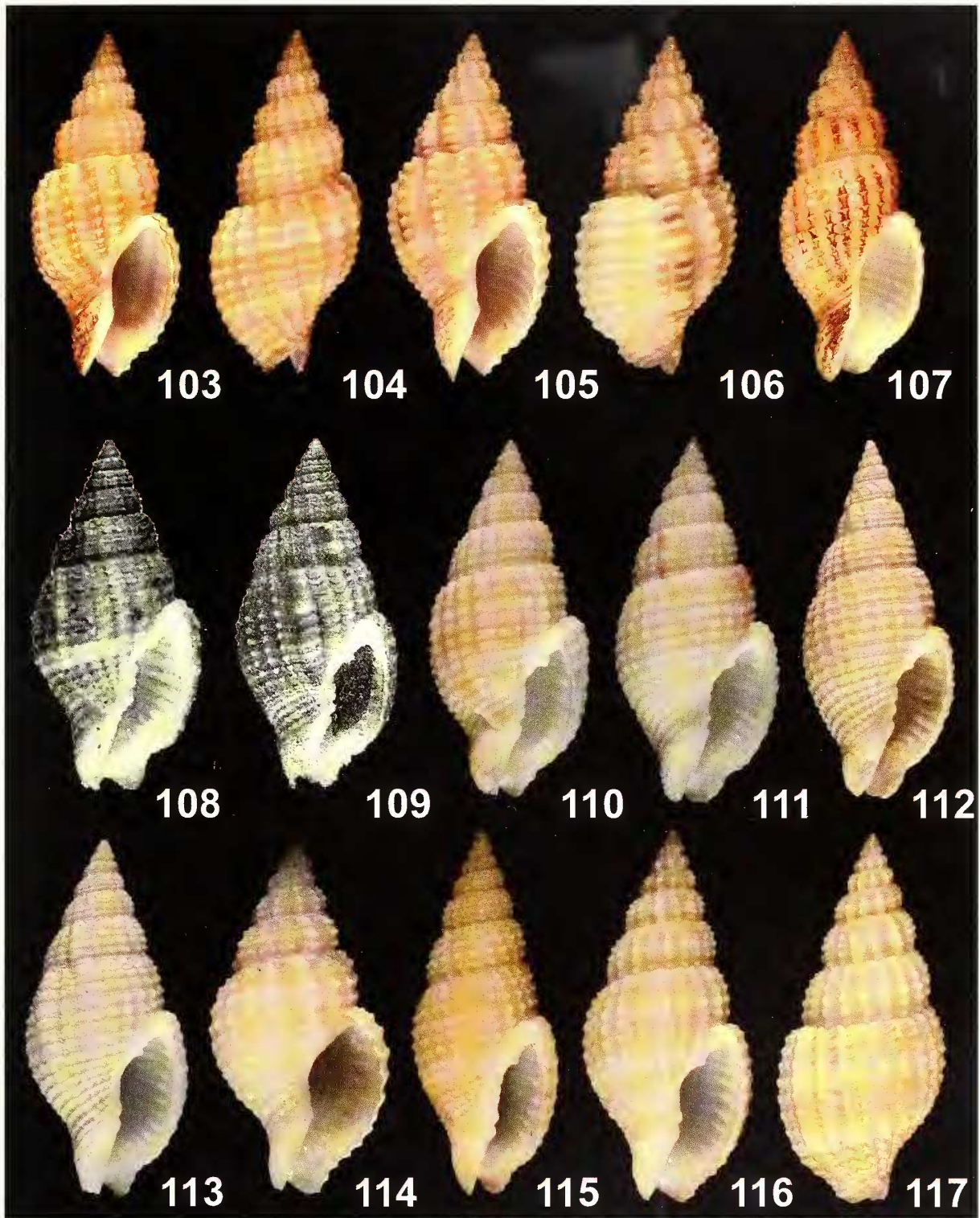
Holotype: ANSP 178716, lost (*vide* P. Callomon, pers. comm., 2008). Schwengel (1942) referred to a “type,” but two specimens were illustrated on plate 3 (figs. 6, 7), neither identified as the holotype.

Type Locality: Dredged at 65 fms off Palm Beach, Florida.

Paratype: UF 150980, 133 m, off Palm Beach, Palm Beach Co., Florida, 1 shell, 25.9 mm; this is neither of the two specimens illustrated by Schwengel (1942).

Other Material Examined: Bermuda. HGL, 400 m, trapped, S of Castle Roads. South Carolina. GTW 4331i, 120 m, SE of Charleston, Charleston Co. Florida. UF 12725, 8 m, Lake Worth, Palm Beach Co.; UF 154749, 200 m, Lake Worth, Palm Beach Co.; UF 425822, 8 m, Lake Worth Inlet, Palm Beach Co.; UF 126248, 146480,

150980, 164329, 168057, 168088, 168206, 168225, 168239, 177142, 177583, 177671, 178946, 179066, 179128, 179504, 179513, 179686, 180089, 180114, 180116, 180187, 185350, 185460, 185947, 186313, 186331, 186365, 186379, 186395, 203368, 203462, 203692, 203950, 204163, 204194, 204297, 204316, 204363, 204558, 204572, 204654, 204658, 204666, 204762, 204790, 204842, 204987, 205132, 205337, 219603, 219780, 220007, 220056, 222080, 222174, 222827, 222890, 223163, 228485, 228819, 239643, 250711, 251100, 262207, 262249 (120–200 m), all Palm Beach, Palm Beach Co.; UF 222181, 120 m, off Lantana, TRITON Sta. 169 and 170, Palm Beach Co.; UF 177277, 40–80 m, Manalapan to Lantana, TRITON Sta. 520–523, Palm Beach Co.; UF 168557, 60–80 m, Lantana to Lake Worth Casino, TRITON Sta. 381–384, Palm Beach Co.; UF 219933, 150–180 m, off Briny Breezes, Boynton Beach, Palm Beach Co.; UF 219827, 120 m, off McGinty house, Boynton Beach, TRITON Sta. 364 and 365, Palm Beach Co.; UF 168179, 100–120 m, Boynton Inlet to Lantana Rd., TRITON Sta. 378–380, Palm Beach Co.; UF 168159, 60 m, off Boynton Inlet, Palm Beach Co.; UF 168159, 60 m, off Boynton Inlet, TRITON Sta. 377, Palm Beach Co.; UF 69985, 168576, 168593, 168659, 176313, 179107, 425825 (120–160 m), all off Delray Beach, Palm Beach Co.; UF 12723, off Hillsboro Light, Broward Co.; UF 266945, 160–200 m, off Hillsboro Beach, Broward Co.; UF 266946, 70–100 m, off Hillsboro Beach, Broward Co.; UF 127582, 80–140 m, off Pompano Beach, Broward Co.; BMSM 8101, 100 m, Miami Beach, Miami-Dade Co.; UF 126263, 54 m, E of Government Cut, Miami Beach, Miami-Dade Co.; UF 127144, Biscayne Bay, Miami-Dade Co.; UF 259115, 25–60 m, off Cape Sable, 25°09' N, Monroe Co.; OSUM 3490, 116 m, St. Petersburg, Pinellas Co.; BMSM 8167, 40 m, W of Marco Island, Collier Co.; UF 259117, 50–60 m, off Cape Sable, 25°09' N, Monroe Co.; UF 129869, 467+ m, 250 km W of Cape Romano, Collier Co.; UF 260326, 45–50 m, off Cape Romano, 25°40' N, Collier Co.; UF 259381, 156 m, W of Ft. Myers, Lee Co.; UF 259343, 259344, both 210 m, W of Venice, Sarasota Co.; UF 122704, 400 m, off Tampa, Hillsborough Co.; UF 261531, 110 m, W of Tampa, Hillsborough Co.; UF 260805, 360 m, W of Tampa, Hillsborough Co.; UF 266950, 267 m, off Tampa, Hillsborough Co.; GTW 4331b, 300–400 m, W of Egmont Key, Tampa, Hillsborough Co.; UF 127806, 73 m, SW Egmont Key, Tampa, Hillsborough Co.; UF 239640, 140 m, SW Egmont Key, Tampa, Hillsborough Co.; HGL, 60 m, W of Egmont Key, Tampa, Hillsborough Co.; UF 126264, 130 m, Egmont Key, Tampa, Hillsborough Co.; UF 126247, 126255, 126257, 126259, 126261 (110–210 m), all 150° off Pensacola, Escambia Co.; UF 126250, 70 m, S of Pensacola, 29°25' N, 87°20' W, Escambia Co.; UF 266948, 250 m, off Key Largo, Monroe Co.; UF 126254, 165006, 165606, 165671, 165583, 165662, 165707, 165596, 168128, 256626, 168196, 168321, 168354, 168381, 168446, 168485, 168549, 176730, 180213, 185426, 185985, 186067, 186154, 186159,



Figures 103–117. *Antillophos* species. **103–107.** *Antillophos verriculum* new species. **103–104.** Holotype, UF 425835, 31.6 mm. **105–106.** Paratype, BMSM 17976, from the type locality, 24.6 mm. **107.** Fallon coll. 10611020, from the type locality, 34.0 mm. **108–117.** *Antillophos virginiae* (Schwengel, 1942). **108.** Schwengel (1942) figure 6. **109.** Schwengel (1942) figure 7. **110.** UF 239643, Palm Beach, Palm Beach Co., Florida, 25.9 mm. **111.** UF 125001, 233 m. SE of Alligator Reef Light, Monroe Co., Florida, 28.0 mm. **112.** UF 256771, 150 m, off Sand Key Light, Monroe Co., Florida, 30.5 mm. **113.** UF 266941, off Dry Tortugas, Florida, 21.5 mm. **114.** UF 219933, 120 m, off Briny Breezes, Boynton Beach, Palm Beach Co., Florida, 11.1 mm. **115.** HGL, 400 m, Bermuda, 32.2 mm. **116–117.** UF 142279, 84 m, S of Marquesas Keys, Florida, 22.5 mm.

186171, 186184, 186197, 186303, 186319, 186399, 186409, 228527, 239639, 250523, 256436, 256537, 256571, 256626, 256641, 256653, 256699, 258824, 377720 (80–250 m), all SW of Sombrero Key Light, Monroe Co.; UF 177118, 177849, 178003, 185418, 186143, 256407, 256440, 256450, 256771, 258648, 258664, 266947 (100–230 m) all off Sand Key Light, Monroe Co.; UF 165637, Anchor, off Marathon, Monroe Co.; UF 185437, 256100, 266942, 185437, 256100, 266943, 266944 (140–250 m), all off Looe Key Reef, Monroe Co.; UF 266949, 120–140 m, off Grassy Key, Monroe Co.; UF 266951, 300 m, off Grassy Key, Monroe Co.; UF 125001, 233 m, SE of Alligator Reef Light, Monroe Co.; FMNH 259398, 169–200 m, Sand Key, off Key West, Monroe Co.; UF 122860, off Key West, Monroe Co.; UF 290012, Miller's Ledge, 24°26.965' N, 82°09.156' W, Monroe Co.; UF 36520, 110–117 m, 24°23' N, 81°56' W, Monroe Co.; UF 259382, 150 m, 29°12' N, 85°50' W, Monroe Co.; FMNH 170993, 100 m, off Dry Tortugas; BMSM 8100, 150 m, off Dry Tortugas; UF 266941, off Dry Tortugas; UF 197434, 238 m, W Dry Tortugas; UF 126251, 130 m, SE of Dry Tortugas; FMNH 194555, 91–213 m, SE of Dry Tortugas; UF 126258, 100 m, S of Marquesas Keys; UF 142275, 92 m, S of Marquesas Keys, 24°24' N, 82°14' W; UF 142267, 84 m, S of Marquesas Keys, 24°24' N, 82°13' W; UF 142279, 84 m, S of Marquesas Keys, 24°24' N, 87°13' W; UF 28772, 112 m, Straits of Florida, 24°24' N, 82°02' W; UF 29891, 128 m, Straits of Florida; BMSM 8166, Straits of Florida; EFG 13001, 140 m, 27°34' N, 84°30' W. Alabama. EFG 14451, 122 m, 29°14' N, 88°15' W; EFG 27724, 70–78 m, 29°34' N, 87°59' W; EFG 27702, 72–74 m, 29°24' N, 87°59' W. Louisiana. BMSM 38500, 28°05' N, 91°00' S; EFG 23207, 89–92 m, 28°07' N, 90°58' W; EFG 26674, 86–91 m, 28°01' N, 92°28' W; EFG 24395, 87.9 m, 28°05' N, 91°00' W. Texas. BMSM unnumbered, beach, Jefferson Co.; UF 266954, Port Aransas, Nueces Co.; UF 126262, 50 m, Port Isabel, Cameron Co. Mexico. UF 381623, BMSM 8664, Bay of Campeche; EFG 26121, both 93–94 m, Campeche, 20°51' N, 92°26' W; EFG 26016, 107–108 m, 22°16' N, 91°30' W. Cuba. UF 126260, 240 m, Bay of Matanzas, Matanzas Province. BMSM 8103, “western Atlantic.”

Distribution: Known from Bermuda, South Carolina, south Florida, and the Gulf of Mexico. Dall's record (1889b) of “*Phos candei*” from Hatteras, North Carolina, is probably this species.

Habitat: In depths from 8 m (rare) to 450+ m. Dead shells are common off SE Florida in depths of 120–200 m; 27 specimens have been taken in a single sample. The few live individuals recorded were from 60–130 m. García (2008b: 8) recorded it from a mud bottom.

Etymology: Not stated, but probably named after Virginia Orr [Maes], malacologist contemporaneous with Schwengel at ANSP.

Discussion: This is the commonly dredged Floridian *Antillophos*. It is usually misidentified as “*candei*.”

Although true *A. candeanus* overlaps *A. virginiae* in south Florida (both have been found in the same sample off Palm Beach), and even occurs in somewhat shallower depths, *A. candeanus* is the much rarer of the two species in Florida. *Antillophos virginiae* is a south Florida and Gulf of Mexico species whereas *A. candeanus* is a Caribbean species unknown from the Gulf outside of southwest Florida. *Antillophos virginiae* is similar in shape and size to *A. candeanus* but differs in its much finer, pustulose sculpture compared to the coarse, serrate sculpture of *A. candeanus*. *Antillophos virginiae* usually has weak denticles or plications on the columella that are absent in *A. candeanus*. It is most similar to *A. oxyglyptus* from the Caribbean, which also may have columellar denticles. Schwengel referred her species to *Tritiaria*, a genus now believed to contain only fossil species (Haasl, 2000). The western Panamic cognate is *A. veraguensis* (Hinds, 1843). See Table 3 for a comparison with other species.

Genus *Bailya* M. Smith, 1944

Subgenus *Bailya* M. Smith, 1944

Bailya M. Smith, 1944: 78

Type Species: *Triton anomala* Hinds, 1844, by original designation.

Description: Small (to 17 mm in length). Fusiform; aperture 50–70% of shell length. Protoconch small, of 1.5 smooth, rounded whorls. Telococonch sculpture of spiral threads and axial ribs; latter may be reduced on last ¼ whorl. Terminal varix is present. Aperture with weak denticles on outer lip. Columella smooth except for a denticle bounding anal canal, continuous, not angled at siphonal canal.

Discussion: Species of *Bailya* superficially resemble those of *Monostiohum* in overall shape and sculpture. However, the protoconch whorls of *Bailya* are rounded, whereas they are tabulate in *Monostiohum*. The columella is continuous in *Bailya* but distinctly angled at the siphonal canal in *Monostiohum*. See Table 1 for comparison with other genera.

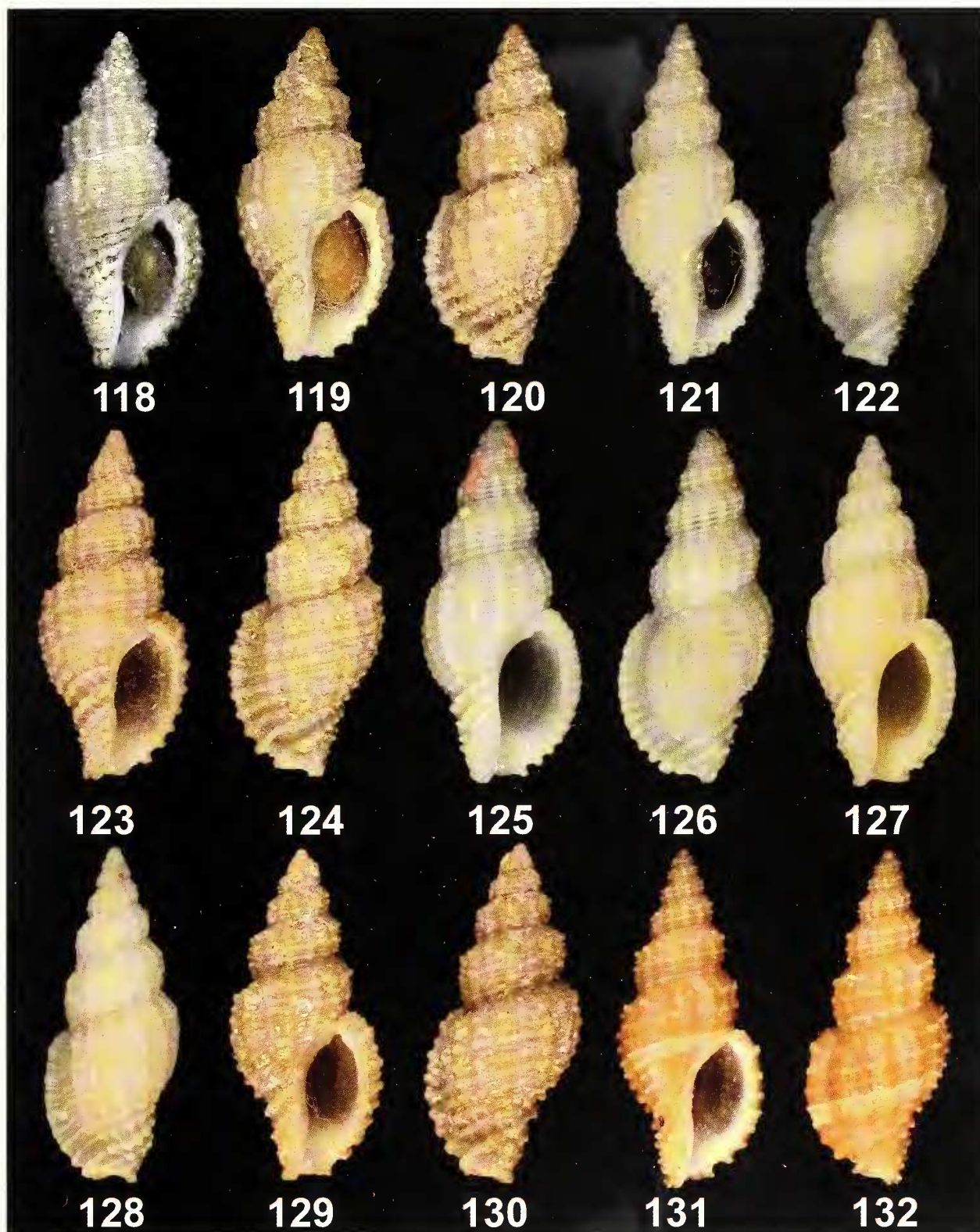
Faber (2004) named the genus *Steye* as a questionable buccinid with *S. janasaraiarum* Faber, 2004, as the type species. Faber compared the genus with *Bailya* but noted that the protoconchs are quite different. The protoconch of *Steye* is large, bulbous, with axial plications. It is quite distinct from any other buccinids in the western Atlantic if indeed it is a buccinid.

Bailya (Bailya) intricata (Dall, 1884)
(Figures 118–133)

Phos intricatus Dall, 1884: 325, pl. 10, fig. 9; Dall, 1889a: 58 [in synonymy of *Triton parvus* Adams, 1850]; Maury, 1922: 58 [in synonymy of *Triton parvus* Adams, 1850].

Phos parvus intricatus Dall, 1884. Olsson and Harbison, 1953: 260; Smith, 1936: 90.

Bailya intricata (Dall, 1884).—Abbott, 1954: 231, pl. 25t; Abbott, 1974: 217, fig. 2395; Kaicher, 1990: No. 5867.



Figures 118–132. *Bailya intricata* (Dall, 1884). **118.** Syntype, USNM 35961. **119–120.** GTW 5051b, 0.6 m, Bear Cut, Key Biscayne, Miami, Miami-Dade Co., Florida, 13.6 mm. **121–122.** GTW 5051g, 20 m, San Blas Islands, Panama, 15.1 mm. **123–124.** GTW 5051c, West Summerland Key, Monroe Co., Florida, 15.3 mm. **125–126.** GTW 5051d, 1 m, Punta Robles, Ambergris Cay, Belize, 13.0 mm. **127–128.** GTW 5051e, 2 m, Eleuthera, Bahamas, 12.5 mm. **129–130.** UF 70263, Havana, La Habana Province, Cuba, 15.8 mm. **131–132.** GTW 4257f, 8.3 m, Tambor Cay, Panama, 15.0 mm.



Figure 133. Distribution of *Bailya intricata* (Dall, 1884).

Bailya parva (Adams, 1850).—Vokes and Vokes, 1983: 25, pl. 14, fig. 12 [misidentification].

Bailya (Bailya) intricata (Dall, 1884). Watters, 2007: 10, figs. 1–3.

Description: Average 14 mm in length (min, 12.0; max, 16.5). Fusiform; spire ca. 50–60% total length. Protoconch blunt, of 1.5 smooth, rounded whorls. Teleoconch of 6 whorls, abruptly arising from protoconch. Teleoconch sculpture of 12–16 1° spiral threads, often bifid, on last whorl, including siphonal canal; cords distinctly raised and square in cross-section. Spiral cords on siphonal canal much stronger. 2° and 3° spiral cords also apparent, arranged in 1-3-2-3-1 pattern. Axial sculpture of widely-spaced, low ribs, 13–16 ribs on penultimate whorl, 13–16 ribs on last whorl. Intersections of axial and spiral sculpture form tuberculate lattice; tabulate below the suture. Sculpture strength varies considerably between populations. Terminal varix well-developed, set back a short distance from outer lip. Aperture oval, weakly crenulated on outer lip; anal canal set off by two denticles. Columella continuous, smooth. Parietal callus adherent to body whorl for its length. Siphonal canal short, open. Color dingy white or gray, occasionally with thin periostracum. Aperture white. Operculum leaf-shaped, yellow to nearly black, with anterior terminal nucleus. Radula and anatomy unknown.

Syntypes: USNM 35961, six shells.

Type Locality: Key West, Florida.

Other Material Examined: Florida. UF 266961, 80–120 m, off Hillsboro Beach, Broward Co.; UF 128071, 30 m, off Boynton Beach, Broward Co.; UF 157590, 20 m, off Pompano Beach, Broward Co.; UF 70272, 205208, 250100, 250953, 261001, all Palm Beach, Palm Beach Co.; GTW 5051b, under rocks in 0.6 m, low tide, Bear Cut, Key Biscayne, Miami, Miami-Dade Co.; UF 145191, Venetian Causeway, Miami, Miami-Dade Co.; UF 266966, Ragged Rocks, Miami-Dade Co.; UF 47383, 10–80 m, off Miami, Miami-Dade Co.; UF 145203, 50 m, E of

Government Cut, South Miami Beach, Miami-Dade Co.; UF 241404, Mashta Point, Key Biscayne, Miami, Miami-Dade Co.; FMNH 25902, 160611, 189448, UF 145207, 266968, all Bonefish Key, Florida Bay, Monroe Co.; FMNH 315154, 315162, both Lake Surprise, Key Largo, Monroe Co.; FMNH 21079, Garden Cove, Key Largo, Monroe Co.; UF 70271, 266965, Key Largo, Monroe Co.; FMNH 315222, Sand Island, near Molasses Reef, Key Largo, Monroe Co.; FMNH 315163, 7 m, Molasses Reef, Key Largo, Monroe Co.; UF 120741, 7 m, Pickles Reef, N Key Largo, Monroe Co.; BMSM 8129, Bahia Honda Key, Monroe Co.; GTW 5051c, West Summerland Key, Monroe Co.; FMNH 315168, 1 m, Raccoon Key, Monroe Co.; BMSM 8004, Summerland Key, Monroe Co.; FMNH 289306, UF 127145, 128059, 145201, 192109, 241405, all Ohio Key, Monroe Co.; FMNH 191362, 189386, UF 145193, 239648, 266963, all Missouri Key, Monroe Co.; UF 145187, Tea Table Key, Monroe Co.; FMNH 315172, 3 m, W side of small key E of Johnston Key, N of Sugarloaf Key, Monroe Co.; FMNH 315171, 3 m, Jeffrey Key, off NW Big Pine Key, Monroe Co.; BMSM 8002, 13 m, Lower Matecumbe Key, Monroe Co.; FMNH 315153, 1 m, Raccoon Key, Monroe Co.; UF 121776, Grassy Key, Monroe Co.; UF 266960, Grassy Key, Monroe Co.; FMNH 227523, Ohio Key, Monroe Co.; UF 123200, Middle Torch Key, Monroe Co.; UF 191402, Old Rhodes Key, Monroe Co.; FMNH 167030, Key West, Monroe Co.; UF 266967, N end of Key West, Monroe Co.; UF 394023, N end of Key West, Monroe Co.; UF 145202, Boca Grande Key, Monroe Co.; UF 12720, Boca Grande Reef, W Key West, Monroe Co.; UF 70131, 70132, 70273, 70275, 145192, 154785, all Key West, Monroe Co.; UF 145209, Middle Sambo Shoals, Key West, Monroe Co.; UF 239647, Sambo Reef, Key West, Monroe Co.; UF 145197, Washerwoman Shoals, near Key West, Monroe Co.; UF 145194, Pelican Shoals, Key West, Monroe Co.; UF 145196, Loggerhead Key, Dry Tortugas; FMNH 202942, UF 70270, 266969, all Dry Tortugas; UF 145188, 16 m, 220° off Naples, Collier Co.; BMSM 8571, FMNH 278920, both Florida Keys. Bahamas. UF 145199, Bimini; GTW 5051a, on reef at 12 m, E of Picquet Rocks, Bimini Islands; UF 145206, Chub Cay, Berry Islands; UF 145186, Morgan's Bluff, Andros; UF 145204, Delaport Point, New Providence; UF 145190, Clifton Point, New Providence; UF 145198, Nassau, New Providence; GTW 5051e, in sand, 2 m, Eleuthera. Cuba. UF 425819, Havana, La Habana Province; UF 266970, Jauco, Guantánamo Province. Puerto Rico. UF 164192, Puerto Rico; UF 145213, La Parguera. Barbados. UF 145208, Hastings Rocks. Grenada. UF 145181, Netherlands Antilles. UF 266974, Aruba. Venezuela. GTW 5051h, 3.3 m, Los Roques Island. Mexico. UF 361558, Cayos Arcas; UF 382278, Isla Contoy, 25 km N of Isla Mujeres, Quintana Roo State. Costa Rica. UF 387542, Moín Bay, W of Portetec. Belize. GTW 5051d, Punta Robles, Ambergris Cay. Honduras. UF 383556, S side in Oak Ridge, Jonesville, and Caribe Point, Roatán Island. Panama. UF 145211, Isla Colón, Bocas del Toro Archipelago; UF 145212,

Almirante; UF 266962, Devil's Beach; UF 397106, Devil's Beach; UF 338529, Isla Payardi, Bahia las Minas; UF 266964, Isla Galeta; GTW 505Ig, 20 m, San Blas Islands; GTW 4257f, 8.3 m, Tambor Cay.

Distribution: Widely distributed in southern Florida, throughout the Greater and Lesser Antilles, and from the Yucatan through Central and South America east to at least Tobago.

Habitat: It occurs subtidally to 120 m, but usually in much shallower water, often among coral rubble.

Etymology: Latin *intricatus*, entangled, probably referring to the fine, reticulate sculpture.

Discussion: This species is very similar to *Bailya parva* and some specimens may be difficult to differentiate, particularly along the Central American coast. Dall himself eventually (1889a) synonymized his species with *B. parva*. In general *B. intricata* has more axial ribs (10–14 on the penultimate whorl of *B. parva* vs. 13–16 in *B. intricata*) and is usually a uniform dingy white or grey whereas *B. parva* is white with one or more brown bands, although exceptions occur, particularly in Honduras. Florida specimens seem to be more coarsely sculptured than most populations. See Table 4 for a comparison with other species.

Bailya (Bailya) parva (Adams, 1850)
(Figures 134–149)

Triton parvus Adams, 1847: 228 [nomen nudum].

Triton parvus Adams, 1850: 59–60; Tryon, 1881: 28, 263 [in synonymy of *Triton eximeus* Reeve, 1846]; Clench and Turner, 1950: 322–323, pl. 40, fig. 12 [lectotype].

Phos parvus (Adams, 1850).—Dall, 1889a: 15, 180, 226; Dall, 1889b: 116–117, pl. 48, fig. 6; Dall and Simpson, 1901: 401; Maury, 1922: 58; Smith, 1936: 20.

Bailya parva (Adams, 1850).—Abbott, 1954: 231; Abbott, 1958: 72; Abbott, 1974: 217, fig. 2396; Humphrey, 1975: pl. 17, figs. 23, 23a; Redfern, 2001: 91, pl. 43, fig. 389.

Bailya intricata (Dall, 1884).—Vokes and Vokes, 1983: 25, pl. 14, fig. 12 [misidentification].

Bailya (Bailya) parva (Adams, 1850).—Watters, 2007: 10, figs. 4–7.

Bailya milleri (Usticke, 1959).—Robin, 2008: 183, fig. 12 [misidentification].

Description: Average 13.6 mm in length (min, 11.5; max, 17.1). Fusiform; spire ca. 50% total length. Proto-

conch blunt, of 1.5 smooth, rounded whorls. Teleoconch of 6 whorls, abruptly arising from protoconch. Teleoconch sculpture varies between populations. Spiral sculpture of some specimens consists of 10–12 1° spiral cords on last whorl, including siphonal canal, with single 2° and multiple 3° cords apparent between them and may become as large as 1° cords. Spiral cords on siphonal canal much stronger. Axial sculpture of widely spaced, low ribs, 10–14 ribs on penultimate whorl, 10–12 ribs on last whorl. Intersections of axial and spiral sculpture form tuberculate lattice in some specimens or low nodules in others. Terminal varix well-developed, set back a short distance from outer lip. Aperture oval, weakly crenulated on outer lip; anal canal set off by two denticles. Columella continuous, smooth. Parietal callus adherent to body whorl for its length. Siphonal canal short, open. Color white with tan bands at suture, periphery, and base; other populations brown with single basal white band. Aperture white. Operculum leaf-shaped, yellow, with anterior terminal nucleus. Radula with three-cusped central tooth and single lateral on each side with three cusps; outer cusp being largest. Radula illustrated in Pilsbry and Vanatta (1904: fig. 5) and redrawn in Watters and Finlay (1989: fig. 7a). Anatomy unknown.

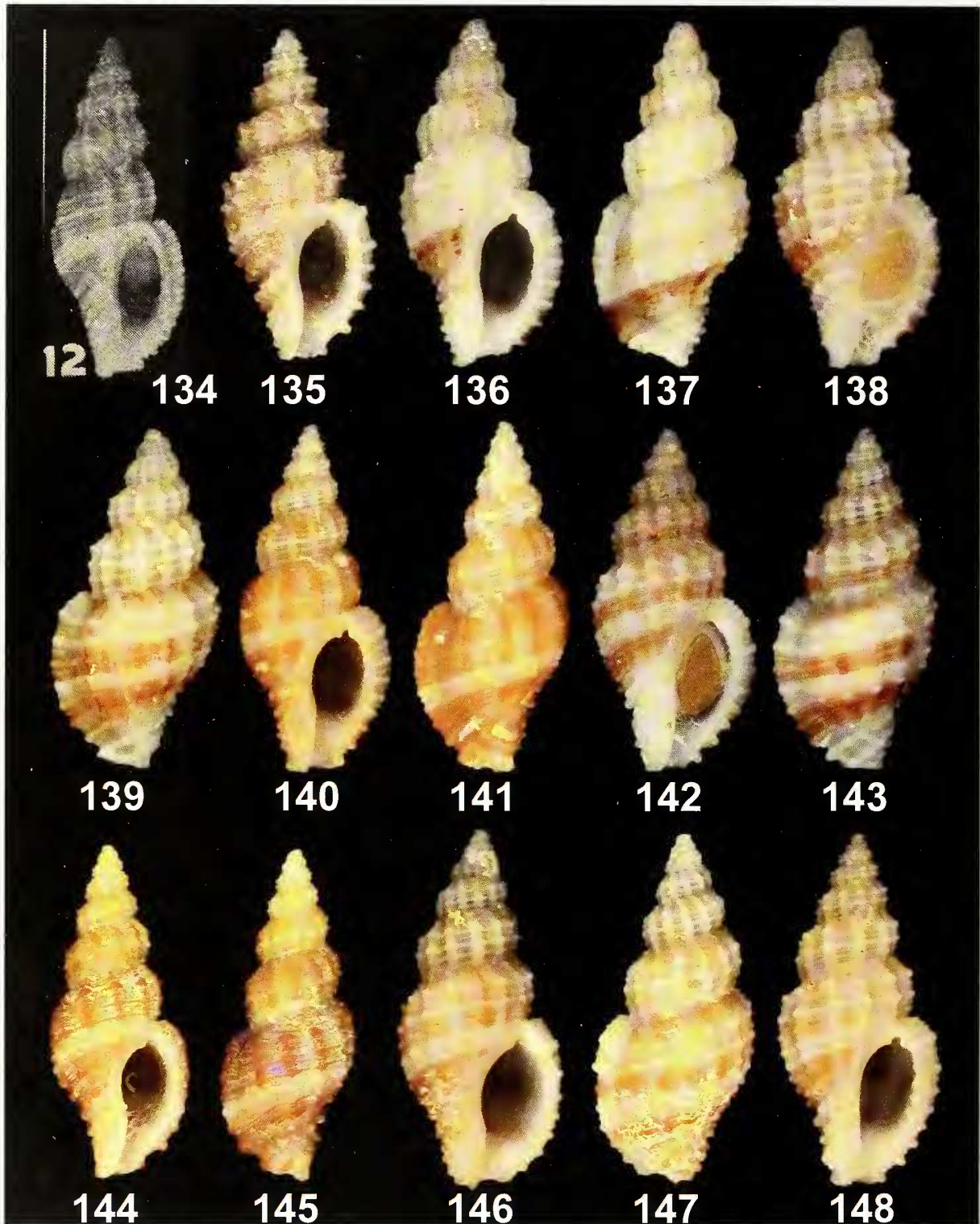
Lectotype: MCZ 177283, specimen not available for study but illustrated in Clench and Turner (1950), pl. 40, fig. 12, reproduced here.

Type Locality: Jamaica.

Other Material Examined: Florida. UF 145876, 205215, 228725, 250013, 250372, all Palm Beach, Palm Beach Co.; UF 145183, Yamato Rocks, Delray Beach, Palm Beach Co.; UF 191412, Elliot Key, Miami-Dade Co.; FMNH 289950, Key Largo, 25°03' N, 80°29' W; FMNH 289780, 0.3–1.6 m, Long Key Bight, ocean side of Long Key, Monroe Co.; BMSM 8625, Cudjoe Key, Monroe Co.; UF 25508, Garden Key, Dry Tortugas; FMNH 278920, Florida Keys. Bahamas. UF 145210, Gun Cay, Bimini; UF 266973, 398290, both Bimini; GTW 4257a, Bimini; UF 145189, Lyons Channel, North Bimini; UF 128054, South Bimini; UF 145205, Adelaide, New Providence; UF 145200, Clifton Bluff, New Providence; UF 145195, Nassau, New Providence; UF 121842, New Providence; UF 38210, Delaport, New Providence; UF 70274, New Providence; UF 267262, Grand Bahama Island; GTW 4257c, under rocks,

Table 4. Shell characteristics of *Bailya* species.

	Average length (max) mm	# spiral cords on last whorl	# axial ribs on last whorl	Color
<i>intricata</i>	14.0 (16.5)	12–16	13–16	dingy white (rarely banded)
<i>morgani</i>	12.2 (14.1)	15	obsolete (14–15)	white with brown subperipheral band
<i>parva</i>	13.6 (17.1)	10–12	10–13	white with brown peripheral, basal or sutural bands
<i>sanctorum</i>	8.3 (9.5)	17–25	obsolete (13–18)	white with brown subperipheral band
<i>weberi</i>	13.0 (16)	13–17	obsolete (11–14)	orange with white subperipheral band



Figures 134–148. *Bailya parva* (Adams, 1850). **134.** Lectotype, MCZ 177283, reproduced from Clench and Turner (1950), pl. 40, fig. 12. **135.** EFG 26246, 53 m, 20°50.22' N, 92°18.91' W, off Campeche, Mexico, 13.3 mm. **136–137.** GTW 4257h, 10–12 m, Cayos de San Andrés, Colombia, 16.9 mm. **138–139.** UF 70263, Havana, La Habana Province, Cuba, 11.4 mm. **140–141.** GTW 4257g, subtidal on reef, Negril, Jamaica, 13.1 mm. **142–143.** GTW 4257m, 10–12 m, St. Michiel to Spaanse Waters, Curaçao, Netherlands Antilles, 12.1 mm. **144–145.** EFG 25945, 46–48 m, 22°10' N, 91°10' W, off Campeche, Mexico, 12.5 mm. **146–147.** GTW 4257b, 1.3–3.3 m, under rubble, southern coast, Dominican Republic, 12.6 mm. **148.** GTW 4257c, 2.6–3.3 m, Tarpum Bay, Eleuthera, Bahamas, 13.1 mm.



Figure 149. Distribution of *Bailya parva* (Adams, 1850).

2.6–3.3 m, Tarpum Bay, Eleuthera; UF 145184, Pigeon Cay, Andros; UF 145185, NW Athol Island; UF 267263, Harbour Island. Cuba. UF 70263, Havana, La Habana Province; UF 145177, Punta Hicacos, Varadero, Matanzas Province; UF 145178, Camarioca Reef, Matanzas Province. Jamaica. GTW 4257g, subtidal on reef, Negril. Dominican Republic. UF 353748, 6 km E of Las Terrenas, N Samaná Peninsula; GTW 4257b, 1.3–3.3 m, under rubble, southern coast. Puerto Rico. UF 162511, Terremoto Reef, off La Parguera; UF 164193, Mona Island. Antigua. UF 145180. Mexico. EFG 26246, 53 m, 20°50' N, 92°19' W, off Campeche; EFG 25945, 46–48 m, 22°10' N, 91°10' W, off Campeche; UF 387978, Isla Cerritos, Campeche State; F 388008, 16 km SW of Champoton, Campeche State; UF 361562, small point 27 km SW of Champoton, Campeche State; UF 383283, ca. 15 km N of Campeche, Campeche State; UF 354402, Playa Bonita, 8 km S of Campeche, Campeche State; UF 263932, Dzilam de Bravo, Yucatan State. Costa Rica. UF 352866, Limón. Honduras. EFG 9354, Cayos Cochinos; GTW 4257k, under coral rubble, 0.3–1.7 m, E Lime Key, SE Roatán Island; GTW 4257i, in reef rubble, 2.0–2.7 m, West Bay, Roatán Island. Colombia. HGL, GTW 4257j, GTW 4257h, all under rocks at 10–12 m, Cayos de San Andrés; GTW 4257l, coral reef, 2 m, Boca Chica, Cartagena. Netherlands Antilles. GTW 4257m, 10–12 m, St. Michiel to Spaanse Waters, Curaçao.

Distribution: Essentially the same as *Bailya intricata*. This seems to be a rarer species than *intricata*, at least in Florida.

Habitat: It occurs subtidally to 150 m, often among coral rubble.

Etymology: Latin *parvus*, small. In its original combination of *Triton parvus*, Adams undoubtedly was calling attention to its small size in comparison with other “tritons” such as *Charonia*.

Discussion: See *Bailya intricata* for a comparison with that species. See Table 4 for a comparison with other species.

Subgenus *Parabailya* Watters and Finlay, 1989

Bailya (*Parabailya*) Watters and Finlay, 1989: 55; Vermcij, 2001: 296 [in synonymy of *Bailya*].

Type Species: *Caducifer* (*Monostioium*) *weberi* Watters, 1983, by original designation.

Description: Differs from *Bailya* sensu stricto in lacking strong sculpture on the final ½ whorl; the axial sculpture is particularly obsolete.

Bailya (*Parabailya*) *morgani* new species
(Figures 150–154, 165)

Bailya sp.—Watters, 2007: 10, fig. 12.

Description: Shell 9.9–14.1 mm in length (holotype 14 mm in length, 5.9 mm in width). Fusiform; spire 5–60% total length. Protoconch blunt, of 1.5 smooth, rounded whorls. Teleoconch of 6 whorls, abruptly arising from protoconch. Teleoconch sculpture of ca. 15 widely spaced, 1° spiral threads, including siphonal canal, between which are minute 2° threads; on last ¼ whorl all threads become equal in strength. Spiral cords on siphonal canal much stronger and tuberculate. Axial sculpture of widely spaced, low ribs; 12–15 ribs on last whorl. Axial ribs barely perceptible on last 1/4 whorl. Intersections of axial and spiral sculpture weakly tuberculate. Terminal varix well-developed, set back a short distance from outer lip. Aperture oval, weakly crenulated on outer lip; anal canal set off by two denticles. Columella continuous, smooth. Parietal callus adherent to body whorl for its length. Siphonal canal short, open. Color cream with broad, tan bands at suture, periphery, and base. Aperture white with tan bands showing through shell. Operculum leaf-shaped, yellow, with anterior terminal nucleus. Radula and anatomy unknown.

Holotype: UF 425840 (ex GTW).

Type Locality: Intertidal rocks, Caribe Point, Roatán Island, Honduras.

Paratypes: BMSM 17979, 1 shell, 12.6 mm, under rocks, 1–2 m, Roatán Island, Honduras (ex GTW); UF 425841, 1 shell, 9.9 mm, juvenile, 2.7 m, Dixon Cave, Roatán Island, Honduras (ex GTW).

Other Material Examined: Honduras. GTW 4257k, 1 shell, 0.3–1.7 m, E Lime Key, Roatán Island; EFG 5952, 10 shells, Caribe Point, Roatán Island; HGL, 1 shell, 0.6–1.3 m, E end Utila Island.

Distribution: Known only from Roatán and Utila Islands, Honduras.

Habitat: Only freshly dead and crabbed shells have been found, under intertidal rocks and coral rubble to 3 m.

Etymology: Named for the entrepreneurial Admiral Sir Henry Morgan (1635–1688), Welsh privateer, who had a base of operations at Port Royal on Roatán Island “employing” perhaps 5,000 people.

Discussion: This taxon appears to be endemic to Roatán and Utila Islands. However, Roatán and the other Bay Islands are known to harbor molluscs found nowhere else, including members of the Muricidae, Volutidae, and Turridae. *Bailya morgani* is similar to *B. sanctorum* new species (below) from the Virgin Islands but differs in its larger size, its geographic isolation, its higher spire, and in having coarser and less numerous axial ribs. It also resembles *B. intricata* but is less tabulate, less strongly sculptured, and with a different color pattern. *Bailya parva* has fewer and stronger axial ribs and usually a shorter spire. From the more widespread *B. weberi* it differs in coloration. See that species for comparison. See Table 4 for a comparison with other species.

Bailya (Parabailya) sanctorum new species
(Figures 155–159, 165)

Description: Shell 7.7–9.5 mm in length (holotype 9.5 mm in length, 4.5 mm in width). Fusiform; spire 50–60% total length. Protoconch blunt, tan or white, of 1.5 smooth, rounded whorls. Teleoconch of 6 whorls, abruptly arising from protoconch. Suture indented. Teleoconch sculpture of ca. 25 spiral threads on last whorl, including siphonal canal. Spiral cords on siphonal canal much stronger. Axial sculpture of widely-spaced, low ribs, 17–25 ribs on last whorl, 13–18 obsolete ribs on the penultimate whorl. Axial ribs barely perceptible on last ½ whorl. Intersections of axial and spiral sculpture weakly tuberculate. Terminal varix well-developed, set back a short distance from outer lip. Aperture oval, weakly crenulated on outer lip forming low lirate teeth; anal canal set off by two denticles. Columella continuous, smooth. Parietal callus adherent to body whorl for its length. Siphonal canal short, open. Color cream with broad tan band at base. Aperture white with tan band showing through shell. Operculum oval, orangish-tan, with an anterior terminal nucleus. Radula and anatomy unknown.

Holotype: UF 145179.

Type Locality: Trunk Bay, Saint John Island, US Virgin Islands.

Paratypes: UF 145179, 7.8 mm; UF 145179, 7.7 mm; from the type locality.

Distribution: Known only from the type locality. The paratypes were live-taken.

Habitat: No depth or substrate information is available.

Etymology: Latin *sanctorum*, of the saints. Named for the numerous Catholic saints lending their names to localities in the region: Saint Thomas, Saint John, Saint Croix, and the Virgin, as well as the fact that the type locality is a preserve, an ecological “holy place.”

Discussion: This appears to be an endemic species, but how endemic remains to be seen. It is so far only

known from the type locality, now part of the Virgin Islands National Park where collecting shells is forbidden, which may explain the dearth of records for this species. It differs from all other *Bailya* in its coloration, its diminutive size (being only ½–2/3 the size of other *Bailya* species), its stocky outline, and in having finer and more numerous axial ribs. It is the smallest *Bailya* known. See Table 4 for a comparison with other species.

Bailya (Parabailya) weberi (Watters, 1983)
(Figures 160–165)

Caducifer (Monostiolum) weberi Watters, 1983: 125–128, figs. 1–6, 11.

Bailya parva (Adams, 1850).—Sarasua and Espinosa, 1984: 6–7, fig. 4b [misidentification].

Monostiolum weberi (Watters, 1983).—Kaicher, 1987: No. 4856.

Bailya (Parabailya) weberi (Watters, 1983).—Watters and Finlay, 1989: 55–56, figs. 5e, f; Watters, 2007: 10, figs. 10, 11.

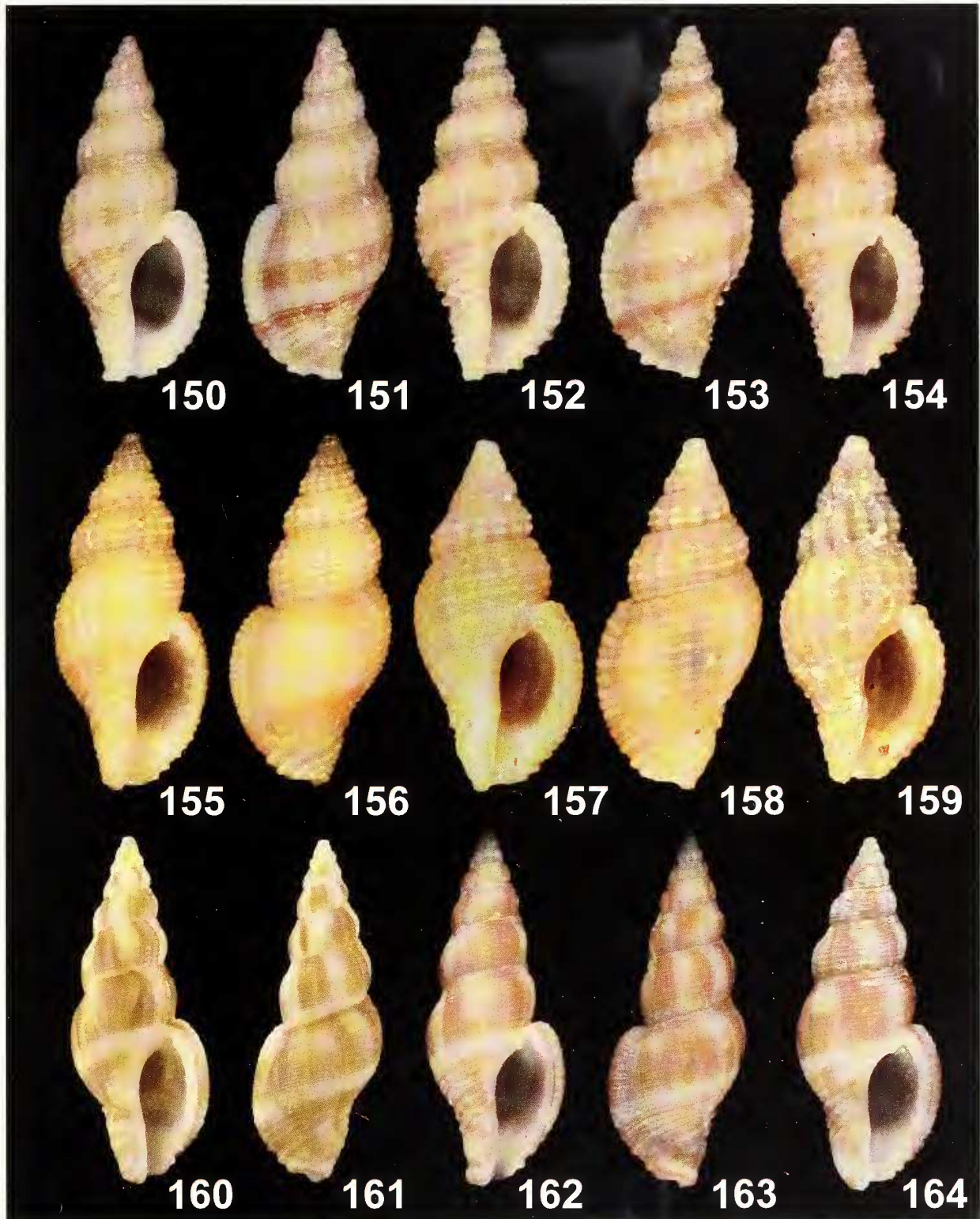
Description: Average 13.0 mm in length (min, 10.0; max, 16). Fusiform; spire ca. 60% total length. Protoconch blunt, of 1.5 smooth, rounded whorls. Teleoconch of ca. 7 whorls, abruptly arising from protoconch. Teleoconch sculpture of spiral cords, which may be bifid, separated by grooves of equal width; 13–17 cords on final whorl. Spiral cords become more subdued by sixth whorl; 2⁵ and 3⁰ threads appear in their interstices. Spiral threads more pronounced on siphonal canal. Axial ribs low, rounded, becoming less pronounced and irregularly spaced on later whorls, barely perceptible on the last ½ whorl; 12–14 ribs on penultimate whorl, 11–14 ribs on last whorl. Terminal varix well-developed, set back a short distance from outer lip. Aperture oval, weakly crenulated on outer lip; anal canal set off by two denticles. Columella continuous, smooth. Parietal callus adherent to body whorl for its length. Siphonal canal short, open. Color orange-brown, protoconch and occasional axial ribs white, with prominent, uninterrupted, white, subperipheral band. Aperture white. Operculum, radula, and anatomy unknown.

Holotype: ANSP 355365, 16 mm.

Type Locality: 73 m off of Looe Key Reef, Big Pine Key, Monroe County, Florida.

Paratypes: AMNH 206077, USNM 617392, each 1 shell, La Chorrera sands, Havana, La Habana Province, Cuba.

Other Material Examined. Cuba. GTW 6830b, 6.7 m, María la Gorda, Pinar del Río Province; UF 425820, Havana, La Habana Province; UF 57512, Havana, La Habana Province; UF 214438, La Chorrera sands, Havana, La Habana Province; UF 145227, 145228, both 20 m, La Chorrera sands, Havana, La Habana Province; UF 266972, Matanzas, Matanzas Province; UF 214437, Varadero, Matanzas Province; UF 298135, Varadero, Matanzas Province. Cayman Islands. UF 28938, Pirates Point Lodge, 1.2 km W of Airport, Little Cayman Island. Dominican Republic. GTW 6830a, under rubble, 4–6 m,



Figures 150–164. *Bailya* species. **150–154.** *Bailya morgani* new species. **150–151.** Holotype, UF 425840, 14.1 mm. **152–153.** Paratype, BMSM 17979, 12.6 mm. **154.** GTW 4257k, 0.3–1.7 m, E Lime Key, Roatán Island, Honduras, 12.8 mm. **155–159.** *Bailya sanctorum* new species. **155–156.** Holotype, UF 145179, 9.5 mm. **157–158.** Paratype, UF 145179, from type locality, 7.8 mm. **159.** Paratype, UF 145179, from type locality, 7.7 mm. **160–164.** *Bailya weberi* (Watters, 1983). **160–161.** Holotype, ANSP 355365, 16 mm, photos courtesy of R. Bieler (FMNH). **162–163.** UF 214438, La Chorrera sands, Havana, La Habana Province, Cuba, 15.0 mm. **164.** UF 298135, Varadero, Matanzas Province, Cuba, 14.1 mm.



Figure 165. Distribution of *Bailya morgani* new species (bullseye), *Bailya sanctorum* new species (S), and *Bailya weberi* (Watters, 1983) (solid).

Cay Caulken reef. Mexico. UF 383438, Punta Honga, Quintana Roo State.

Distribution: *Bailya weberi* has a rather limited range in the western Atlantic Ocean: the Florida Keys, Yucatan, the Cayman Islands, Cuba, and Hispaniola. It is best known from La Chorrera sands off Havana. *Bailya intricata*, *B. parva*, and *B. weberi* have been taken in the same sample off Havana.

Habitat: Depth records place it between 4 and 73 m, probably in coral rubble, but these records are for dead shells.

Etymology: Named after the late Jay Weber of Miami, Florida, who assembled one of the largest private collections of his time. The holotype was derived from his collection.

Discussion: This brightly colored species cannot be confused with any other. Although a few specimens show some rugose ribs on the final whorl, the majority of specimens have very weak axial sculpture there. Two additional *Bailya* (*Parabailya*) are described here. *Bailya morgani* new species differs from *B. weberi* in its coloration, being cream with a brown sub-peripheral band; *B. weberi* is orange with a white sub-peripheral band; *B. sanctorum* new species is cream colored with a faint brown band and is less than 2/3 as large as *B. weberi*. See Table 4 for a comparison with other species.

Genus *Caducifer* Dall, 1904

Caducifer Dall, 1904: 136–137.

Type Species: *Triton truncatus* Hinds, 1844, by original designation.

Description: Overall very similar to *Monostiolum* (see below) but differs in being decollate as an adult. There are no appreciable differences between the western Atlantic species and those from the Pacific Ocean that would suggest that they do not belong to the same

genus. While it could be argued that *Caducifer* is a subgenus of *Monostiolum*, the absence of *Monostiolum* in the Indo-West Pacific and the presence of *Caducifer* in both oceans suggests to me that the decollate state of *Caducifer* is an important characteristic at the genus level. The radula of *C. decollata* (Sowerby I, 1833) was illustrated by Ponder (1972: fig. 1.3). It differs from that of *Monostiolum tessellatum* in having the central tooth bearing five rather than three cusps. See Table 1 for comparison with other genera.

Caducifer atlanticus Coelho, Matthews and Cardoso, 1970 (Figures 166–173, 181)

Caducifer atlanticus Coelho, Matthews and Cardoso, 1970: 185–188, figs. 1–3; Rios, 1975: 93–94, pl. 27, fig. 386; Rios, 1985: 99, pl. 34, fig. 436; Leal, 1991: 151, pl. 19, fig. E [protoconch]; Rios, 1994: 121, pl. 39, fig. 513.

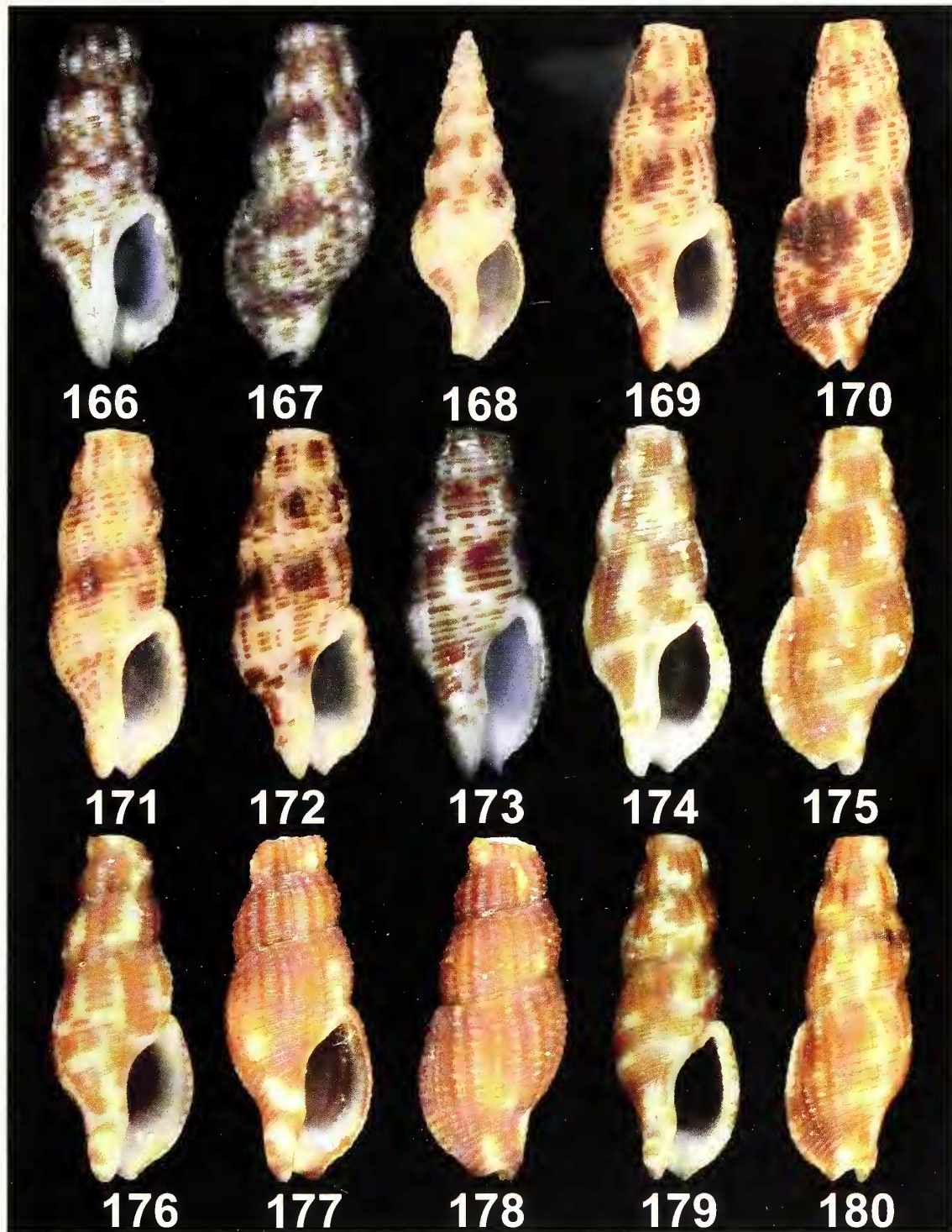
Caducifer atlantica [sic] Coelho, Matthews and Cardoso, 1970.—Watters and Finlay, 1989: 57.

Description: Average size 13.6 mm in length (min, 13.0; max, 14.5), cylindrical, decollate. Fusiform; decollate spire ca. 60% total length. Protoconch blunt, of 1.25–2 smooth whorls, tabulated. First portion somewhat immersed in remaining part. Teleoconch of 3 whole and partial 4th whorl in decollate adult; 6.5 teleoconch whorls on only immature, non-decollate specimen seen. Spiral cords rounded; ca. 25 cords on last whorl, separated by wide flattened spaces crossed with microscopic threads. Axial ribs rounded, widely separated, C-shaped on final whorl; ca. 16 ribs on penultimate whorl, ca. 14 ribs on final whorl. Terminal varix well-developed, thickened. Aperture elongate, somewhat constricted. Parietal lip erect for much of its length, thickened. Anal canal bounded by weak thickening of columella and a denticle on inner lip. Inner lip with ca. 7 lirate teeth. Columella angled at siphonal canal. Siphonal canal short, open. Color white with dark brown, irregular sutural and siphonal canal patches. Spiral cords with brown areas on axial ribs. Aperture white. Operculum, radula, and anatomy unknown.

Holotype: Museu Nacional, Brazil, MNRJ 3550, 13 mm.

Type Locality: Praia do Andrada, Trindade Island, Brazil.

Paratypes: LABOMAR, Instituto de Ciências do Mar, Universidade Federal do Ceará, 485, 1 shell, 60 m, Praia de Mucuripe, Fortaleza, Ceará State, Brazil; Museu Nacional, Brazil, MNRJ 3548, 1 shell, 60 m, Praia de Mucuripe, Fortaleza, Ceará State, Brazil; LABOMAR, 486, 1 shell, Trindade Island, Brazil; Museu Nacional, Brazil, 3549, 1 shell, Ilha da Trindade, Brazil; Museu de Zoologia da Universidade de São Paulo, 18506, 1 shell, Praia das Tartarugas, Trindade Island, Brazil; P.S. Cardoso coll., 3580 (Maceió), 1 shell, Praia do Principe, Trindade Island, Brazil; Museu Oceanográfico de Rio Grande, 15860, 1 shell, Praia da Enseada da Cachoeira, Trindade Island, Brazil; Museu Nacional, Brazil, 3551,



Figures 166–180. *Caducifer* species. **166–173.** *Caducifer atlanticus* Coelho, Matthews and Cardoso, 1970. **166–167.** Holotype, Museu Nacional, Brazil 3550, 13 mm, photos courtesy P. M. Costa (Museu Nacional, Brazil). **168.** GTW 10261g, 33 m, off Guarapari, Espírito Santo State, Brazil, 13.6 mm. **169–171.** GTW 10261c, 20–25 m, under rocks, off Rio do Fogo, Rio Grande do Norte State, Brazil. **169–170.** 13.8 mm. **171.** 13.0 mm. **172.** 30 m, under rocks, Cajueiro, Rio Grande do Norte State, Brazil, 14.5 mm. **173.** Paratype, Museu Nacional, Brazil 3548, size unknown, photo courtesy P.M. Costa (Museu Nacional, Brazil). **174–180.** *Caducifer camelopardalus* new species. **174–175.** Holotype, UF 425838, 11.4 mm. **176.** Paratype, UF 425839, from the type locality, 11.0 mm. **177–178.** Paratype, BMSM 17974, 110–140 m, off Cabo Frio, Rio de Janeiro State, Brazil, 11.2 mm. **179–180.** Paratype, OSUM 35444, 32 m, under rocks, off Porto Seguro, Bahia State, Brazil, 13.9 mm.

1 shell, Praia da Enseada da Cachoeira, Trindade Island, Brazil.

Other Material Examined: Brazil. GTW 10261f, 30 m, under rocks, Cajueiro, Rio Grande do Norte State; GTW 10261g, 33 m, under rocks, coral bottom, off Guarapari, Espírito Santo State; BMSM 17999, GTW 10261c, GTW 10261h, all 20–25 m, under rocks, off Rio do Fogo, Rio Grande do Norte State; HGL, beached, Ilha da Trindade, Espírito Santo State.

Distribution: Northeastern Brazil in Bahia, Ceará, Espírito Santo, Rio Grande do Norte, and Rio de Janeiro States, including Trindade Island and offshore seamounts of Vitória, Davis, and Dogaressa Seamounts (Leal, 1991).

Habitat: The specimens from 60 m were found in the “pacamon,” a type of toadfish (*Amphichthys cryptocentrus* (Valenciennes, 1837)). Freshly dead shells have been recorded from 20–33 m under rocks on a coral bottom.

Etymology: From the Atlantic Ocean.

Discussion: See Table 5 for a comparison with *Caducifer camelopardalus* new species (below).

Caducifer camelopardalus new species
(Figures 174–181)

Description: Shell 11.1–13.8 mm in length (holotype 11.4 mm in length), decollate. Fusiform; decollate spire 50–60% total length. Protoconch unknown. Teleoconch of 3 whole and a partial fourth whorl in decollate adult. Spiral cords rounded, ca. 27 cords on last whorl, separated by wide flattened spaces crossed with microscopic threads. Axial ribs rounded, widely separated; ca. 17 ribs on penultimate whorl, ca. 18 weak ribs on final whorl. Terminal varix well-developed, rather narrow. Aperture elongate, not constricted. Parietal lip barely erect for much of its length, thickened. Anal canal bounded by very weak thickening of columella and a denticle on inner lip. Inner lip with ca. 9 weak, lirate teeth nearly absent in some specimens. Columella angled at siphonal canal. Siphonal canal short, open. Color white with orangish-tan blotches forming vague stripes and flammulations and a white subperipheral band; some specimens are almost uniformly dark, reddish brown. Aperture white. Operculum, radula, and anatomy unknown.

Holotype: UF 425838 (ex GTW).

Type Locality: 20–25 m, under rocks, 70 km off Alcobça, Bahia State, Brazil.

Paratypes: UF 425839, 1 shell, 11.0 mm, from the type locality (ex GTW); BMSM 17974, 1 shell, 11.2 mm,

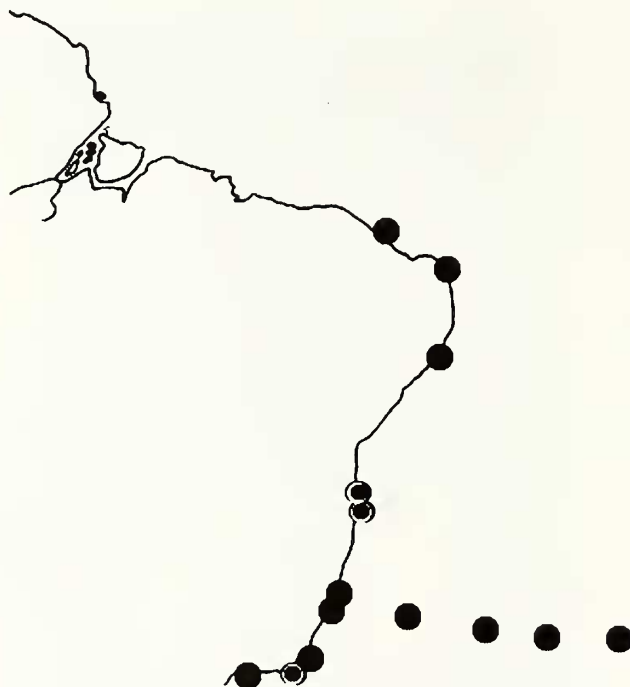


Figure 181. Distribution of *Caducifer atlanticus* Coelho, Matthews and Cardoso, 1970 (solid) and *Caducifer camelopardalus* new species (bullseye).

110–140 m, off Cabo Frio, Rio de Janeiro State, Brazil (ex GTW); OSUM 35444, 1 shell, 13.9 mm, 32 m, under rocks, off Porto Seguro, Bahia State, Brazil (ex GTW).

Other Material Examined: Brazil. GTW 10261e, 110–140 m, off Cabo Frio, Rio de Janeiro State.

Distribution: Off Bahia and Rio de Janeiro States, eastern Brazil; it has not been found on the seamounts where *C. atlanticus* occurs.

Habitat: Freshly dead shells have been found under rocks at 20–140 m.

Etymology: Latin *camelopardalus*, [spotted like] a giraffe.

Discussion: This species occurs within the range of *C. atlanticus* but may live in deeper water. *Caducifer camelopardalus* differs from *C. atlanticus* is having a narrow terminal varix (thicker in *C. atlanticus*), weak to absent denticles on the inner margin of the outer lip (denticles more developed in *C. atlanticus*), and a color pattern of large orangish blotches (small dark brown blotches and spiral lines in *C. atlanticus*). See Table 5. A very similar but undescribed species occurs at Escudo de Veraguas

Table 5. Shell characteristics of *Caducifer* species.

	Average length (max) mm	Inner lip	Varix	Color
<i>atlanticus</i>	13.6 (14.5)	Denticles well-developed	Thick	Dark brown patches and lines
<i>camelopardalus</i>	11.3 (13.8)	Denticles weak or absent	Narrow	Orange-brown flammulations

Island, Panama, but the disposition of the sole specimen, sold to a private collector, is unknown to me.

Dianthiphos new genus

Description: Fusiform; spire ca. 50% of length. Protoconch bulbous, 1.5 whorls, smooth, pink in the two known species. Teleoconch of 5 whorls, with spiral threads and axial ribs that become obsolete on last whorl. Single, thick, terminal varix. Columella angled at siphonal canal with a single denticle bounding anal canal. Outer lip without denticles, or with weak denticles bounding the anal canal. No internal lirae. Siphonal canal short, open.

Type Species: *Pisania bernardoi* Costa and Gomes, 1998.

Etymology: Latin *dianthus*, carnation, a pink, in reference to the pink protoconch.

Discussion: Costa and Gomes (1998) placed their species *bernardoi* in *Pisania* Bivona-Bernardi, 1832, a genus based on the European *P. striata* (Gmelin, 1791). Several western Atlantic species have been placed in *Pisania*, including *P. auritula* (Link, 1807) and *P. tincta* (Conrad, 1846), both now considered members of *Gemophos* Olsson and Harbison, 1953 (Vermeij, 2006), and *P. pusio* (Linnaeus, 1758). Both *P. striata* and *P. pusio* differ from *P. bernardoi* in having much larger shells, different protoconchs, incised spiral sculpture, columellar lirae (in *P. pusio*), and lirate outer lips. *Dianthiphos* differs from *Monostiolium*, conchologically the most similar genus in the western Atlantic, in its large, bulbous protoconch; the protoconch of *Monostiolium* is small, conical, and tabulate. *Antillophos* has a small, conical, keeled protoconch. *Bailya* has a small, rounded protoconch and a continuous columella, the latter of which is angled in *Dianthiphos*. See Table 1 for further comparison with other genera.

Dianthiphos is similar to several Indo-West Pacific genera. *Sukumaia* Cernohorsky, 1966, type species *S. jenningsi* Cernohorsky, 1966, also has a purple protoconch but lacks sculpture on the final whorls (corded in *Dianthiphos*) and has a denticulate outer lip (smooth in *Dianthiphos*). *Appisania* Thiele, 1929, type species *A. montrouzieri* (Crosse, 1862), also is denticulate. Nevertheless the three genera seem closely related. *Ecmanis* Gistel, 1848, type species *E. igneum* (Linnaeus, 1758), and *Taeniola* Dall, 1904, type species *T. dcollata* (Sowerby, 1833), both differ from *Dianthiphos* in their smaller protoconchs and incised spiral sculpture.

Dianthiphos bernardoi (Costa and Gomes, 1998)
(Figures 182–185, 196)

Pisania bernardoi Costa and Gomes, 1998: 15–17, figs. 1–4;
Robin, 2008: 193, fig. 6.

Description: Average size 15.2 mm in length (min, 12.4; max, 19.6). Fusiform; spire ca. 50% the total length. Protoconch bulbous, of 1.5 smooth, pink whorls. Teleoconch of 5 whorls, abruptly arising from proto-

conch. Teleoconch sculpture of 16–18 flattened, spiral threads, including siphonal canal, with intercalated 2° threads. Spiral cords on siphonal canal slightly stronger. Axial sculpture of closely spaced low ribs; 13–17 ribs on penultimate whorl, becoming obsolete on final whorl. Intersections of axial and spiral sculpture weakly nodulose. Terminal varix well-developed, thick. Aperture oval, outer lip without teeth or with only weak denticles at anal canal. Columella angled at siphonal canal and bearing a weak denticle at anal canal and a single plication at siphonal canal; parietal lip adherent to previous whorl for all of its length. Siphonal canal short, open. Color brown to yellow with white blotches and white sub-peripheral band. Aperture white. Operculum leaf-shaped, yellow, with anterior terminal nucleus. Radula and anatomy unknown.

Holotype: Museu Oceanográfico Eliézer Rios da Fundação Universidade de Rio Grande, Brazil, MORC 39.006.

Type Locality: Continental slope off the coast of Salvador, Bahia State, Brazil.

Paratypes: Museu Nacional, Brazil, MNRJ 7163, off Guarapari, Espírito Santo State, Brazil; Museu de Zoologia de São Paulo, Brazil, MZSP 28.196, off Guarapari, Espírito Santo State, Brazil; “USNM, off Guarapari, Espírito Santo State, Brazil” (indicated in original description but stated paratype not in USNM collection); Muséum National d’Histoire Naturelle, Paris, off Guarapari, Espírito Santo State, Brazil; Instituto de Biologia da Universidade Federal do Rio de Janeiro, Brazil, IBUFRJ 6786, off Guarapari, Espírito Santo State, Brazil.

Other Material Examined: Brazil. GTW 9143a, HGL, both under rocks, 20–25 m, off Guarapari, Espírito Santo State; GTW 9143b, lobster nets, 50–60 m, off Guarapari, Espírito Santo State; GTW 9143c, among rocks, 1–3 m, Cabo Frio, Rio de Janeiro State.

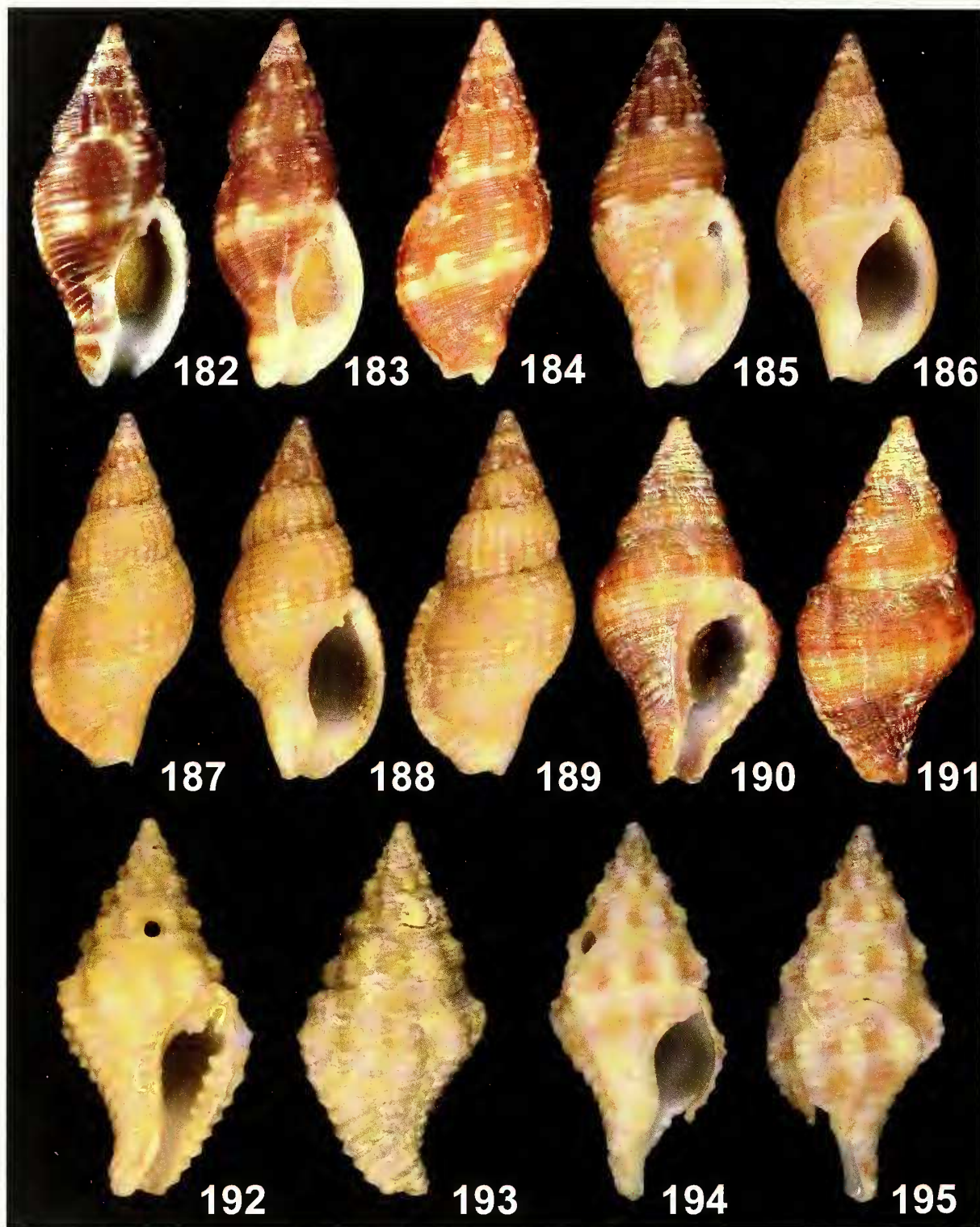
Distribution: Recorded from southern Espírito Santo State to Rio de Janeiro State, Brazil.

Habitat: Dead shells have been recorded from 1 to 60 m; live individuals are known from 20–25 m, under rubble.

Discussion: This species differs from the Colombian *D. clcctrum* new species by being slightly smaller, much more fusiform, much darker in color, and having fewer axial ribs on the penultimate whorl (ca. 16 in *bernardoi* vs. ca. 28 in *clcctrum*). It is geographically separated by ca. 4,600 km. See Table 6 for further comparison.

Dianthiphos clcctrum new species
(Figures 186–189, 196)

Description: Shell 15.9–16.7 mm in length (holotype 16.7 mm in length). Fusiform; spire ca. 50% total length. Protoconch bulbous, of 1.5 smooth, pink whorls. Teleoconch of 5 whorls, abruptly arising from protoconch. Teleoconch sculpture of ca. 17–20 flattened spiral threads,



Figures 182–195. *Dianthiphos*, *Engina*, and *Hesperisternia* species. **182–185.** *Dianthiphos bernardoii* (Costa and Gomes, 1998). **182.** Holotype, Museu Oceanográfico Eliézer Rios da Fundação Universidade de Rio Grande, Brazil, 39.006, 15.6 mm, photo courtesy P.M. Costa (Museu Nacional, Brazil). **183–184.** GTW 9143a, 20–25 m, Guarapari, Espírito Santo State, Brazil, 16.1 mm. **185.** HGL, 20–25 m, Guarapari, Espírito Santo State, Brazil, 15.4 mm. **186–189.** *Dianthiphos electrum* new species. **186–187.** Holotype, UF 425834, 16.7 mm. **188–189.** Paratype, BMSM 17975, from the type locality, 15.8 mm. **190–191.** *Engina goncalvesi* Coltro, 2005. GTW 12477a, 40–45 m, off Arrail do Cabo, Rio de Janeiro State, Brazil, 11.2 mm. **192–195.** *Hesperisternia itzamnai* new species. **192–193.** Holotype, UF 170226, 17.9 mm. **194–195.** Paratype, UF 170226, from the type locality, 16.2 mm.



Figure 196. Distribution of *Diantliphos bernardoii* (Costa and Gomes, 1998) (solid) and *Diantliphos electrum* new species (bullseye).

including siphonal canal, with intercalated 2° threads. Spiral cords on siphonal canal slightly stronger. Axial sculpture of closely-spaced, low ribs; 22–28 ribs on penultimate whorl, becoming obsolete on final whorl. Intersections of axial and spiral sculpture weakly nodulose. Terminal varix well-developed, thick. Aperture oval, outer lip without teeth. Columella angled at siphonal canal and bearing one or more weak denticles at anal canal and a single plication at siphonal canal; parietal lip adherent to previous whorl for all of its length. Siphonal canal short, open. Color yellowish-tan, darker on earliest whorls, with pale tan spiral band at periphery and faint white band anterior to that one. Aperture white. Operculum, radula, and anatomy unknown.

Holotype: UF 425834 (ex HGL).

Type Locality: Trawled off Cabo de La Vela, Guajira Peninsula, Colombia. Depth unknown.

Paratype: BSM 17975, 1 shell, 15.9 mm, from the type locality (ex HGL).

Distribution: Known only from the type locality.

Habitat: Based on freshly dead specimens. Depth and substrate unknown.

Etymology: Latin *electrum*, amber, in reference to the color of the shell; a neuter noun in apposition.

Discussion: See under *Diantliphos bernardoii* for a comparison with that species. Additional specimens have recently been sold to private collectors. H.G. Lee graciously donated the specimens for study. See Table 6 for further comparison.

Genus *Monostiolum* Dall, 1904

Colubraria (*Monostiolum*) Dall, 1904: 136.

Pisania (*Monostiolum*) Dall, 1904.—Fulton, 1936: 8.

Monostiolum (*Monostiolum*) Dall, 1904.—Ponder, 1972: 255.

Caducifer (*Monostiolum*) Dall, 1904.—Cernohorsky, 1975: 196.

Monostiolum Dall, 1904.—Watters and Finlay, 1989: 48.

Type Species: By original designation, *Triton swifti* Tryon, 1881 [= *Triton tessellatus* Reeve, 1844].

Description: Small (to 21 mm), fusiform; aperture 50–70% of shell length. Protoconch of 1.25–1.5 small, smooth, tabulated whorls. Teleoconch sculpture of spiral threads and axial ribs; latter may be reduced on last ¼ whorl. Aperture with weak denticles on outer lip. Columella smooth except for denticles bounding anal and siphonal canals, angled at siphonal canal.

Discussion: Beyond the species discussed below, at least three additional ones await description. The shell illustrated in Merlano and Hegedus (1994: fig. 698) appears to represent an undescribed species but I have not seen the specimen; it is from Santa Marta, Colombia. A specimen of another undescribed species from Los Testigos, Venezuela, has been recently sold to a private collector, but the disposition of that specimen is unknown to me. A specimen of a third undescribed species from Yucatan in the García collection is too worn to be described at this time. Most of the eastern Pacific species assigned to this genus by Keen (1971) do not belong here, having different protoconchs. See Table 1 for comparison with other genera.

Monostiolum auratum Watters and Finlay, 1989 (Figures 197–201, 215)

Colubraria swifti Tyron, 1881. Warmke and Abbott, 1961: 117, pl. 21, fig. i [misidentification].

Monostiolum auratum Watters and Finlay, 1989: 51–53, figs. 3, 7E, 8; García, 2006: 80, fig. 8.

Description: Average size 18.2 mm in length (min, 15.3; max, 21.0). Fusiform; spire ca. 66% total length. Protoconch blunt, of 1.25 smooth, tabulated whorls.

Table 6. Shell characteristics of *Diantliphos* species.

	Average length (max) mm	# spiral cords on last whorl	# axial ribs on penultimate whorl	Color
<i>bernardoii</i>	15.2 (19.6)	16–18	13–17	dark brown with white blotches and subperipheral band
<i>electrum</i>	16.3 (16.7)	17–20	22–28	yellow-tan with tan and white subperipheral bands

Teleoconch of ca. 7 whorls, abruptly arising from protoconch. Teleoconch sculpture of 20–25 rounded or flattened spiral threads, including siphonal canal, with intercalated 2° threads. Spiral cords on siphonal canal only slightly stronger. Axial sculpture of widely spaced, low ribs; 12–17 ribs on penultimate whorl. Axial ribs reduced and sigmoidal on last ½ whorl. Intersections of axial and spiral sculpture weakly nodulose. Terminal varix well-developed, set back a short distance from outer lip. Aperture oval, with 9–12 weak denticles on outer lip; anal and siphonal canal each set off by two denticles. Columella angled and bearing a weak denticle at siphonal canal, otherwise smooth; parietal lip adherent to previous whorl for its posterior half but erect for rest of its length. Siphonal canal short, open. Color golden orange with narrow, interrupted, white spiral bands at periphery and base. Spaces between some axial ribs dark brown; white bands do not cross these spaces. Aperture white. Operculum oval, yellow, with anterior terminal nucleus. Radula, and anatomy unknown.

Holotype: USNM 859960.

Type Locality: Rincón, Puerto Rico, in beach drift.

Paratypes: BM(NH) 1987065, 1 shell, Rincón, Puerto Rico; DMNH uncataloged, 1 shell, Rincón, Puerto Rico; DMNH uncataloged, 1 shell, beach at Piñones, 4.8 km E of Boca de Cangrejos, Puerto Rico; Finlay coll., 1 shell, Rincón, Puerto Rico; Finlay coll., 2 shells, beach at Piñones, 4.8 km E of Boca de Cangrejos, Puerto Rico; Finlay coll., 1 shell, 9–12 m, Puerto del Tortuguero, Puerto Rico.

Other Material Examined: Puerto Rico. ANSP 228472; USNM 598298, 24 km off Punta Borinquen; HGL, 1.7 m, La Parguera; GTW 8617a, 8617d, La Parguera; GTW 8617b, under rock, 13 m, Tourmaline Reef; UF 145224, Rincón; UF 388377, Playa Corcega, 2.4 km S of Rincón; UF 164005, Palmas Altas; UF 145223, San Antonio Reef; UF 145219, 162219, both Ramey Air Force Base, Aguadilla.

Distribution: Apparently endemic to Puerto Rico. Records of this species (non-types) in Watters and Finlay (1989) for St. Lucia (USNM 682388) and Barbados (USNM 19534) seem to represent aberrant *M. tessellatum* or an undescribed species.

Habitat: Fairly common in beach drift and live in rubble to 13 m.

Etymology: Latin *auratum*, golden or gilded, in reference to the color of the shell.

Discussion: In life, the shell appears dark grayish green, perhaps due to a thin periostracum, but none of the dead specimens have retained that color. The golden color and dark inter-axial streaks are characteristic of this species. See Table 7.

Monostiolum fumosum new species
(Figures 209–215)

Description: Shell 13.9–15.4 mm in length (holotype 15.4 mm in length). Fusiform; spire ca. 66% total length. Protoconch blunt, of 1.25 smooth, slightly tabulate whorls with two brown stripes. Teleoconch of 6.75 whorls, abruptly arising from protoconch. Teleoconch sculpture of rounded 1° and 2° spiral threads; 2° only evident on posterior half of whorl, of equal strength on anterior half; 20–30 threads in total including siphonal canal. Axial sculpture of widely spaced, rounded ribs; 23 ribs on last whorl, 18–24 ribs on penultimate whorl, somewhat obsolete on last ½ whorl, sigmoid in shape. Intersections of axial and spiral sculpture nodulose. Terminal varix well-developed, thick, flat, sutured, set back a short distance from outer lip. Aperture oval, with 8 thick lirae within outer lip. Columella angled and bearing a weak denticle at siphonal canal and anal canal, smooth elsewhere; parietal lip adherent for posterior third but erect for remainder of its length. Siphonal canal short, open. Color tan with brown interaxial spaces on spire, brown sutural blotches on last whorl, and a diffuse brown, subperiphreal band; the specimens examined are remarkably uniform in color and sculpture. Aperture white with columella streaked with brown. Operculum, radula, and anatomy unknown.

Holotype: UF 425833 (ex HGL).

Type Locality: 8.3 m, N side of Isla Coche, Venezuela.

Paratypes: BMSM 17978, 14.8 mm, from the type locality (ex HGL); HGL, 13.9 mm, from the type locality.

Distribution: Currently only known from the type locality.

Habitat: Based on freshly dead shells from 8.3 m. Substrate unknown.

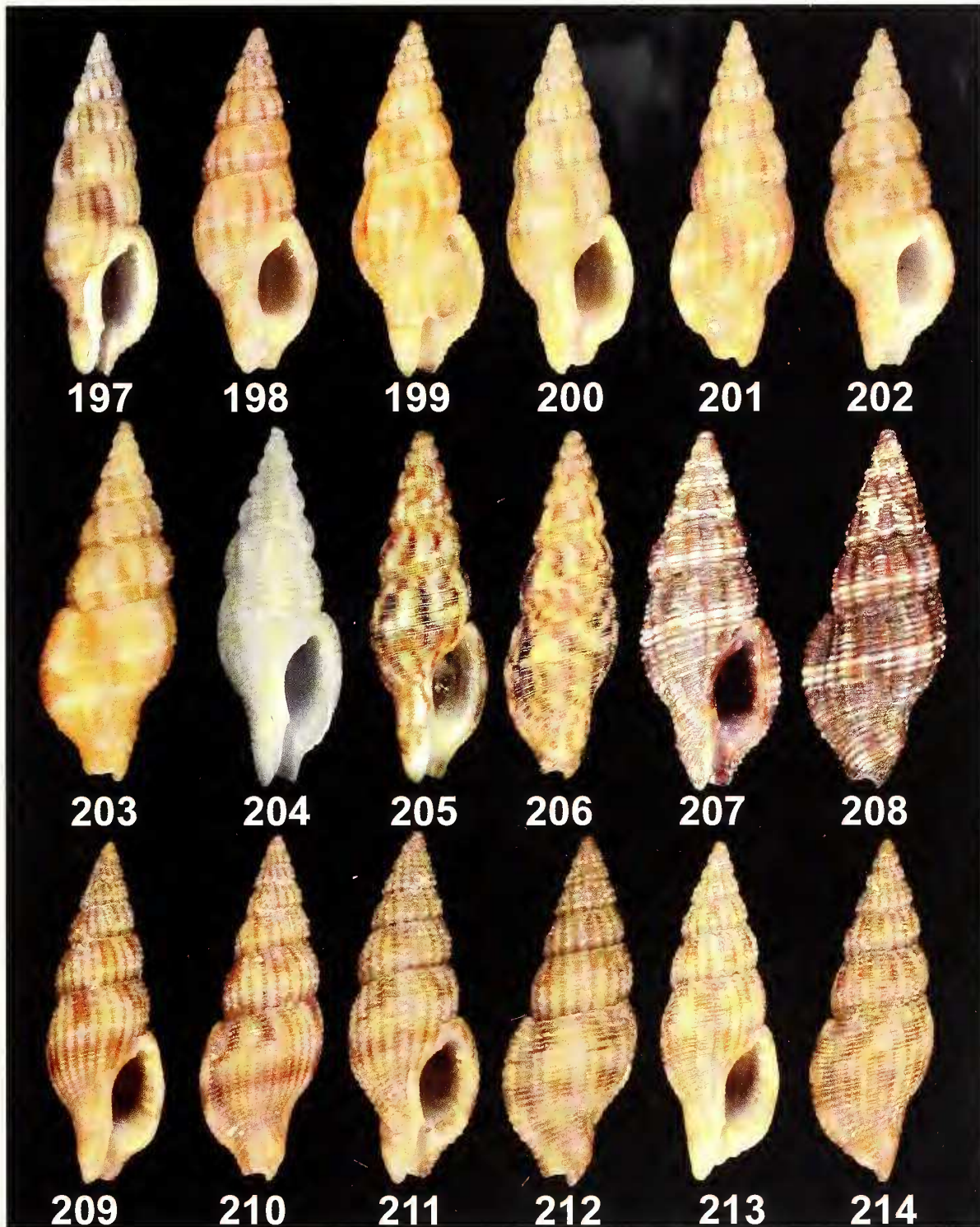
Etymology: Latin *fumosus*, smoky, in reference to the coloration of the shells.

Discussion: This species is most similar to *Monostiolum tessellatum* (Reeve, 1844). It differs in its consistently more pronounced axial sculpture that remains of almost equal strength on the last ½ whorl; in *M. tessellatum*, the axial sculpture is less pronounced overall and usually becomes obsolete on the last ½ whorl. The color pattern of *M. fumosus*, with its fine, interaxial, brown streaks, is unique among *Monostiolum*. See Table 7 for a comparison with other species. H.G. Lee graciously donated the specimens for study.

Monostiolum harryleei García, 2006
(Figures 205–206, 215)

Monostiolum harryleei García, 2006: 80–82, figs. 5, 6.

Description (Holotype): 18.9 mm in length, minus protoconch. Fusiform; spire ca. 60% total length. Protoconch unknown. Teleoconch of 6.5 whorls. Teleoconch sculpture of numerous 1°, 2°, and 3° spiral cords and threads, separated by incised lines; ca. 23 primary cords on last whorl. Axial sculpture of widely spaced, prominent ribs; ca. 15 ribs on penultimate whorl. Axial ribs



Figures 197–214. *Monostiolum* species. **197–201.** *Monostiolum auratum* Watters and Finlay, 1989. **197.** Holotype, USNM 859960, 21 mm. **198.** UF 145224, Rincón, Puerto Rico, 16.6 mm. **199.** GTW 8617c, 13 m, North Tourmaline Reef, Mayaguez, Puerto Rico, 16.4 mm. **200–201.** GTW 8617b, 13 m, Tourmaline Reef, Mayaguez, Puerto Rico, 17.5 mm. **202–204.** *Monostiolum rosewateri* Watters and Finlay, 1989. **202–203.** GTW 11416a, 83–150 m, off Baileytown, Barbados, 15.7 mm. **204.** Holotype, USNM 87098, 15.7 mm, photo courtesy of Y. Villacampa (USNM). **205–206.** *Monostiolum harrylei* García, 2007. Holotype, ANSP 413503, 18.9 mm. **207–208.** *Monostiolum nocturnum* new species. Holotype, UF 425836, 12.4 mm. **209–214.** *Monostiolum fumosum* new species. **209–210.** Holotype, UF 425833, 15.4 mm. **211–212.** Paratype, BMSM 17978, from the type locality, 14.8 mm. **213–214.** Paratype, HGL coll., from the type locality, 13.8 mm.

Table 7. Shell characteristics of *Monostiohum* species.

	Average length (max) mm	Spiral sculpture incised	# spiral cords on last whorl	# axial ribs on penultimate whorl	Axial ribs obsolete on last ¼ whorl
<i>auratum</i>	18.2 (21)	no	20–25	12–17	yes
<i>fumosum</i>	14.7 (15.4)	no	20–30	18–24	yes
<i>harryleei</i>	19.0	yes	23	15	yes
<i>nocturnum</i>	12.4	no	27	14	no
<i>rosewateri</i>	16.9 (18)	no	18–25	9–12	yes
<i>tessellatum</i>	14.9 (18)	no	25–30	15–22	yes

reduced on last 1/4 whorl. Intersections of axial and spiral sculpture weakly nodulose. Terminal varix well-developed, set back a short distance from outer lip. Aperture oval, with 9 weak denticles on outer lip; anal and siphonal canal each set off by two denticles. Columella angled and bearing a weak denticle at siphonal canal, otherwise smooth; parietal lip adherent to previous whorl for most of its length. Siphonal canal short, open. Color off-white with dark brown tessellations and flammulations. Aperture white. Operculum, radula, and anatomy unknown.

Holotype: ANSP 413503.

Type Locality: 54–56 m, Bahía de Campeche, Mexico. 22°16.08' N, 90°42.89' W.

Paratype: EFG 25796, 1 shell, 16.7 mm, 53–55 m, Bahía de Campeche, Mexico. 22°16.45' N, 90°39.83' W.

Distribution: Bahía de Campeche, Mexico.

Habitat: Known only from dead shells collected at 53–56 m. Substrate unknown.

Etymology: Named for H.G. Lee, MD, of Jacksonville, Florida, renowned expert on western Atlantic mollusks.

Discussion: This species is most similar to *Monostiohum tessellatum* but differs in the peculiar incised spiral sculpture. See Table 7 for a comparison with other species.

Monostiohum nocturnum new species
(Figures 207–208, 215)

Description: 12.4 mm in length. Fusiform; spire ca. 60% total length. Protoconch blunt, of 1.25 smooth, slightly tabulate whorls; brown with two paler stripes. Teleoconch of 5.75 whorls, abruptly arising from protoconch. Teleoconch sculpture of rounded 1° and 2° spiral threads; 2° threads only evident on posterior and anterior thirds of whorl, of equal strength in middle; ca. 27 threads in total including siphonal canal. Axial sculpture of widely-spaced, rounded ribs; 13 ribs on last whorl, 14 ribs on penultimate whorl, not obsolete on last ½ whorl, sigmoid in shape on last whorl. Intersections of axial and spiral sculpture nodulose. Terminal varix well-developed, thick, flat, sutured, set back a short distance from outer lip. Aperture oval, inner surface of outer lip with large denticle at anal and siphonal canals and six much weaker, irregular denticles in between. Columella

angled and bearing a weak denticle at siphonal canal and anal canal, elsewhere smooth; parietal lip adherent most of its length, barely erect on siphonal canal. Siphonal canal short, open. Color dark purplish-brown with 2–3 subperipheral spiral cords colored white; additional spiral cords forming vague, white, axial bands. Aperture purplish-brown, paler within. Operculum, radula, and anatomy unknown.

Holotype: UF 425836 (ex GTW).

Type Locality: 70–80 m, mud and sand, off Charlottesville, Tobago.

Distribution: Currently only known from the type locality.

Habitat: Based on a fresh-dead shell from 70–80 m in mud and sand.

Etymology: Latin *nocturnus*, of the night, an indirect reference to the dark-colored shell.

Discussion: Although here described from a single specimen, additional specimens from the type locality were sold to private collectors; however, the final disposition of those specimens is not known. This is a very distinct species: it is the only *Monostiohum* having the combination of prominent but closely spaced sculpture,



Figure 215. Distribution of *Monostiohum auratum* Watters and Finlay, 1989 (solid), *Monostiohum rosewateri* Watters and Finlay, 1989 (R), *Monostiohum harryleei* García, 2007 (H), *Monostiohum nocturnum* new species (bullseye), and *Monostiohum fumosum* new species (F).

dark overall coloration, and dark aperture. See Table 7 for a comparison with other species.

Monostiohm rosewateri Watters and Finlay, 1989
(Figures 202–204, 215)

Colubraria (Monostiohm) sp.—Sander and Lalli, 1982: 316.
Monostiohm rosewateri Watters and Finlay, 1989: 53–55, figs. 4, 8; García, 2006: 80, fig. 10.

Description: Average size 16.9 mm in length (min, 15.8; max, 18.0). Fusiform; spire ca. 60% total length. Protoconch blunt, of 1.5 smooth, tabulated whorls. Teleoconch of ca. 7 whorls, abruptly arising from protoconch. Teleoconch sculpture of 18–25 rounded or flattened spiral threads, including siphonal canal, with intercalated 2° threads. Spiral cords on siphonal canal only slightly stronger. Axial sculpture of widely spaced, prominent ribs, 9–12 ribs on last whorl. Axial ribs reduced in strength on last ½ whorl. Intersections of axial and spiral sculpture weakly nodulose. Terminal varix well-developed, thick, set back a short distance from outer lip. Aperture oval, with 7–9 lirate teeth on outer lip; anal and siphonal canal each set off by two denticles. Columella angled and bearing a weak denticle at siphonal canal, elsewhere smooth; parietal lip adherent to previous whorl for most of its length. Siphonal canal short, open. Color cream to tan with irregular white blotches and two vague, white, spiral bands at periphery and base. In some specimens primary spiral cords are brown, but other shells do not show this feature. Aperture white. Operculum, radula, and anatomy unknown.

Holotype: USNM 87098.

Type Locality: Western Barbados, BLAKE Sta. 272, 139 m, ca. 13°10' N, 59°40' W.

Paratypes: AMNH 112353, 2 shells, W side Barbados; Redpath Museum 16301, 1 shell, DIADEMA Sta. 55, 229 m, off St. James and Speightstown, western Barbados, on sandy bottom.

Other Material Examined: Barbados. Redpath Museum, uncataloged, DIADEMA Sta. 69, 186 m, off Coral Beach, sand and shell bottom; GTW 11416a, 83–150 m, off Baileytown; HGL, W Holetown, St. James.

Distribution: Endemic to the SW coast of Barbados.

Habitat: Dead shells are found on sand and shell bottoms at 139–229 m.

Etymology: Originally named after the late Joseph Rosewater of USNM in recognition of his many malacological achievements and his kindness to the author during my visits there.

Discussion: This species is apparently endemic to fairly deep water off western Barbados. It is easily differentiated from *Monostiohm tessellatum*, which occurs in much shallower water in Barbados, by the more pronounced and fewer axial ribs (ca. 9–12 in *M. rosewateri*

vs. ca. 15–22 in *M. tessellatum*). See Table 7 for a comparison with other species.

Monostiohm tessellatum (Reeve, 1844)
(Figures 216–223, 231)

Triton tessellatus Reeve, 1844: pl. 19, fig. 91; Tryon, 1881: 30 [in synonymy of *Triton concinnus* Reeve, 1846].

Pleurotoma igniflua Reeve, 1845: pl. 24, fig. 214.

Triton (Epidromus) swifti Tryon, 1881: 31, pl. 16, fig. 158.

Triton swifti Tryon, 1881.—Simpson, 1887: 65.

Colubraria swiftii [sic] (Tryon, 1881).—Dall, 1889a: 19, 226 [in part].

Colubraria (Monostiohm) swifti (Tryon, 1881).—Dall, 1904: 136.

Pisania (Monostiohm) igniflua (Reeve, 1845).—Fulton, 1936: 7, 8.

Monostiohm (Monostiohm) swifti (Tryon, 1881).—Ponder, 1972: 255, pl. 24, fig. 7, text fig. 1.8.

Caducifer (Monostiohm) tessellatus (Reeve, 1844).—Cernohorsky, 1975: 196, fig. 50.

Caducifer (Monostiohm) swifti (Tryon, 1881).—Watters, 1983: 125, 126, figs. 7–10, 12.

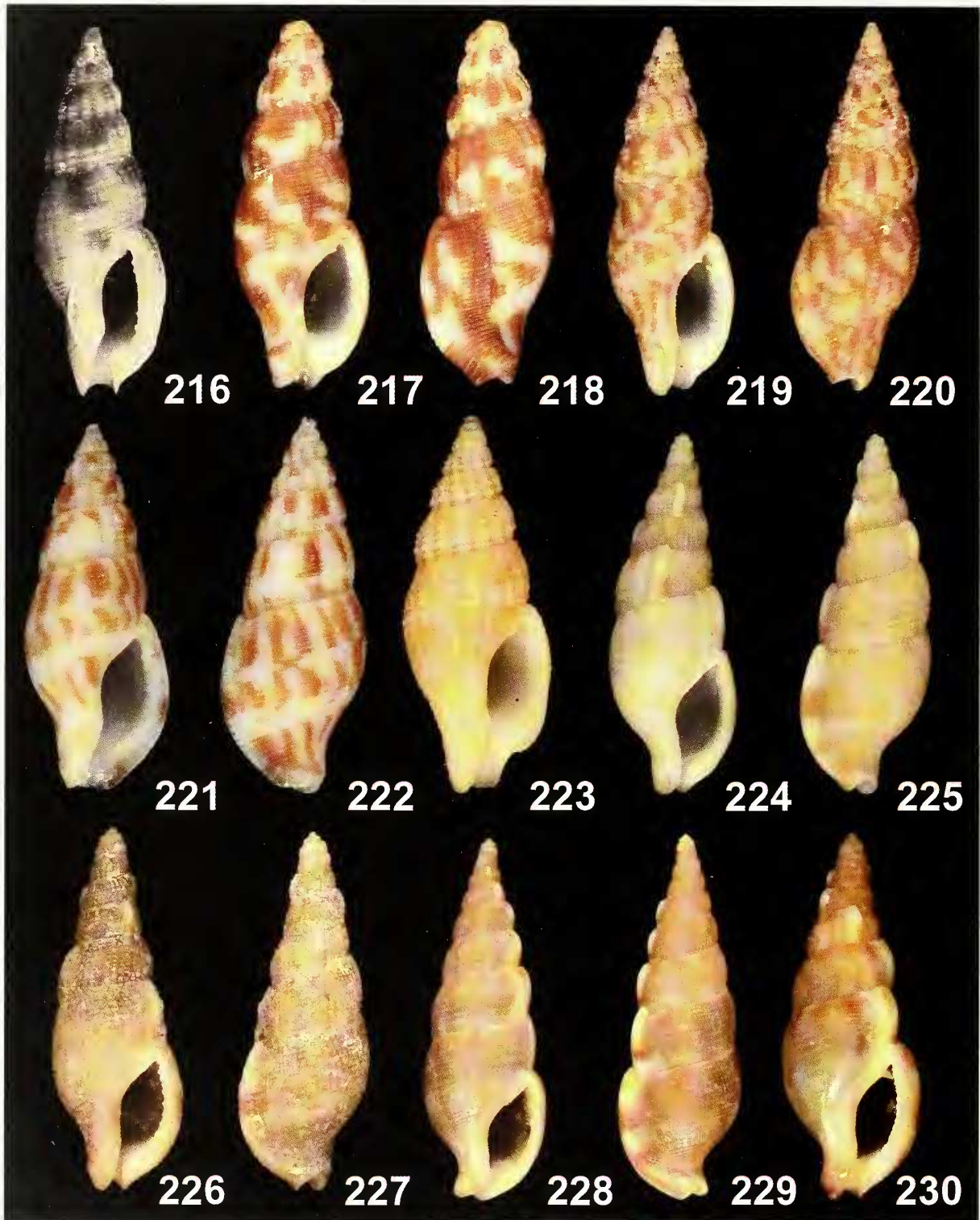
Monostiohm tessellatum (Reeve, 1844).—Beu and Maxwell, 1987: 59; García, 2006: 80, fig. 9.

Monostiohm swifti (Tryon, 1881).—Beu and Maxwell, 1987: 59.

Description: Average size 14.9 mm in length (min, 12.3; max, 18.0). Fusiform; spire ca. 50–66% total length. Protoconch blunt, of 1.5 smooth, tabulated whorls. Teleoconch of ca. 7 whorls, abruptly arising from protoconch. Teleoconch sculpture of 25–30 rounded or flattened spiral threads, including siphonal canal, with intercalated 2° threads; these 2° threads may become equal in strength to 1° ones on last whorl. Spiral cords on siphonal canal stronger and flattened. Axial sculpture of widely spaced, low ribs, 15–22 ribs on last whorl. Axial ribs reduced or barely perceptible on last ½ whorl. Intersections of axial and spiral sculpture weakly nodulose. Terminal varix well-developed, set back a short distance from outer lip. Aperture oval, with ca. 9 weak denticles on outer lip; anal and siphonal canal each set off by two denticles. Columella angled and bearing a weak denticle at siphonal canal, elsewhere smooth; parietal lip adherent to previous whorl for its posterior half but erect for rest of its length. Siphonal canal short, open. Color pattern quite variable, ranging from nearly all white to all dark brown, usually with zig-zag flammulations or checkerboard pattern. A vague basal band of white may be present as well. Operculum rhomboidal, tan, with anterior terminal nucleus. Radula figured by Ponder (1972: fig. 1.8); central tooth with three cusps; laterals with three cusps, outer cusp largest. Anatomy unknown.

Types: *Triton tessellatus* Reeve, 1844; lectotype by designation of Watters and Finlay (1989), BM(NH) 196747/1. *Pleurotoma igniflua* Reeve, 1845, type(s) apparently lost. *Triton (Epidromus) swifti* Tryon, 1881, holotype ANSP 59208.

Type Locality: *Triton tessellatus* Reeve, 1844, "Island of Burias, Philippines" corrected by Watters and Finlay (1989) to Barbados. *Pleurotoma igniflua* Reeve,



Figures 216–230. *Monostiolium* and *Cumia* species. **216–223.** *Monostiolium tessellatum* (Reeve, 1845). **216.** Lectotype of *Triton tessellatus* Reeve, 1844, BM(NH) 196747/1, photo from Watters and Finlay (1989), 16.6 mm. **217–218.** HGL, The Reefs, Southampton, Bermuda, 15.4 mm. **219–220.** GTW 4068a, Bermuda, 17.5 mm. **221–222.** GTW 4068b, Tiburon, Haiti, 12.6 mm. **223.** GTW 8617c, 5 m, E side of Booby Point, Tobago, 12.1 mm. **224–227.** *Cumia clavula* new species. **224–225.** Holotype, UF 341080, 18.1 mm. **226–227.** Paratype, BMSM 17973, Palenque, Dominican Republic, 13.6 mm. **228–230.** *Cumia sunderlandi* (Petuch, 1995). **228–229.** Holotype, UF 225165, 20 mm. **230.** HGL, 27 m, Tryall, Jamaica, 18.2 mm.



Figure 231. Distribution of *Monostiolum tessellatum* (Reeve, 1845).

1845, unknown. *Triton* (*Epidromus*) *swifti* Tryon, 1881, Antigua.

Paratypes: *Triton tessellatus* Reeve, 1844, 3 paralectotypes by designation of Watters and Finlay (1989), BM (NH) 196747/2–4.

Other Material Examined: Bermuda. ANSP 10145, 17822, 36217, 36326, 70156, BMSM 38496, UF 56460, 70372, 154832, 214436, 390474, DMNH 24501, USNM 94410, 149864, 221621, 417730, 663420, GTW 4068a; USNM 656480, NW reefs off Somerset; USNM 658971, SW reef off Somerset; UF 145214, 145215, 145222, both Hastings Rocks, Bridgetown; UF 145221, 145226, both Hungry Bay, S shore; ANSP 319019, Hungry Bay; USNM 714206, Tucker's Town; USNM 771849, Castle Harbour, Blue Hole; USNM 807649, St. George's Island; USNM 621601, W end of St. George's Island; HGL, intertidal, Southampton, The Reefs; DMNH 51840, Bailey's Bay; ANSP 145957, Shelly Bay; ANSP 88579, USNM 171930, both Gibbet Island; ANSP 183806, USNM 152157, both Hamilton; USNM 835691, SW of Whalebone Bay; DMNH, Coney Island, off Ferry Reach; AMNH 193322, USNM 500148. Bahamas. USNM 54542; USNM 417731, Bimini. Cuba. UF 145225, Las Carboneras, Varadero, Matanzas Province; USNM 678505, Guantánamo Bay, Guantánamo Province. Jamaica. ANSP 36219, 36220. Haiti. BMSM 38497, Tiburon; GTW 4068b, under rubble on reef, shallow water, Tiburon. Dominican Republic. USNM 42964, Samaná. Puerto Rico. UF 162220, Rincón. Bequia. HGL, 3.3 m. Grenada. Finlay coll. Barbados. UF 145220; USNM 500149, 22 m, Carlisle Bay; USNM 500150, 4.6–6 m, off Pelican Island; USNM 459598, shallow water, off Pelican Island. Trinidad and Tobago. AMNH 193453, USNM 682304, both shallow water, Buccoo reef, Tobago; UF 145218, 12 m, Buccoo Point, Tobago; UF 145217, Buccoo Point, Tobago; Finlay coll., Amos Vale beach, Tobago; HGL, Monkey Point, E coast, Tobago; GTW 8617c, 5 m, E side of Booby Point, Mt. Irving Bay, Tobago.

Distribution: Islands in the western Atlantic Ocean: Bermuda, Greater and Lesser Antilles; possibly St. Lucia (see under *M. auratum*). The Brazilian record for this species in Watters and Finlay (1989), based on a single juvenile individual (Rios, 1994: pl. 39, fig. 514 and in subsequent editions), is now interpreted as a juvenile of *Caducifer atlanticus* Coelho, Matthews and Cardoso, 1970.

Habitat: Dead shells are found from shallow water to at least 33 m under rubble on reefs. Live-taken specimens are rare.

Etymology: Latin *tessellatus*, mosaic. The specimen described by Reeve had a checkerboard pattern.

Discussion: In contrast to the other species of Atlantic *Monostiolum*, *M. tessellatum* has a very wide distribution; the remaining species are all narrowly endemic. Nevertheless, *M. tessellatum* appears to be rare outside of Bermuda and Barbados, the two extremes of its range. The name "*Colubraria swifti*" has stubbornly persisted despite the fact that the valid name for this species is *Monostiolum tessellatum*. The taxonomic tangle of *swifti/tessellatum* was described in detail in Watters and Finlay (1989). See Table 7 for a comparison with other species.

Genus *Parviphos* Sarasua, 1984

Parviphos Sarasua, 1984: 2.

Type Species: *Phos adelus* Schwengel, 1942, by original designation (see discussion).

Description: Small (to 16 mm), compact, solid shells. Protoconch of 1.5 smooth whorls, tabulate, with first whorl sunken into the remainder. Spire usually ca. 50% of overall height. Sculptured with axial ribs and spiral threads. No previous varices. Final varix massive, reflected abaperturally. Columella with or without denticles. Inner surface of outer lip with strong lirae. Anal canal bounded by two prominent denticles. Juveniles of *P. chalconius* new species have a thin periostracum bearing minute bristles; this has not yet been observed on other species.

Discussion: In the UF collection are specimens of this genus listed under the name "*Spartaphos*;" this is a manuscript name attributed to H. Rehder but never validly introduced. Sarasua (1984) originally compared this genus to *Antillophos*, noting the lack of a transition between the protoconch and the teleoconch in *Antillophos* that is more apparent in *Parviphos*. The protoconchs of the two genera actually bear no resemblance to each other. In *Parviphos* the protoconch is smooth, small, tabulate, with the first whorl sunken into the next; in *Antillophos* the protoconch is larger and conical with a sharp peripheral keel. The protoconch of *Parviphos* is more similar to that found in *Monostiolum*.

Parviphos differs from *Engina* in having lirae rather than denticles within the outer lip, a massive, reflected terminal varix, and none or reduced columellar

denticles. *Pollia* Gray, 1834, type species *P. undosum* (Linnaeus, 1758), differs in having a labral tooth on the outer lip. Many species need to be reexamined in light of these differences. For instance, the syntype of "*Pollia*" *eximia* (Reeve, 1846) illustrated by Kaicher (1990: No. 5839), appears congeneric with *Parviphos*. See Table 1 for comparison with other genera.

Sarasua (1984) gave *Phos adelus* as the type of the genus. However, she did not illustrate an example and in Sarasua and Espinosa (1984) a specimen of *P. chalconius* n.sp. is illustrated as "*Phos adelus*." This suggests that the type species may have been misidentified, but lacking the specimen(s) upon which the genus was established I cannot be sure. Nevertheless, both *P. adelus* and *P. chalconius* are congeneric.

Parviphos adelus (Schwengel, 1942)
(Figures 232–244, 247)

Phos (?) *adelus* Schwengel, 1942: pl. 3, fig. 4 [July], 66 [Oct.]; the captioned plate was published prior to the text description.

Antillophos adelus (Schwengel, 1942).—Kaicher, 1986: No. 4442.
Parviphos adelus (Schwengel, 1942).—Sarasua, 1984: 2; Watters, 2007: 10.

Description: Average size 14.1 mm in length (min, 12.9; max, 16.2). Biconical, rather wide; spire ca. 50% total length. Protoconch small, flattened, of 1.5 smooth, tan to purple whorls, with a paler band. Teleoconch of 5–5.75 whorls, strongly demarcated from protoconch. Teleoconch sculpture of ca. 17–18 rounded, erect, widely separated spiral cords, including siphonal canal, with intercalated 2° threads or cords, and occasionally 3° threads. 2° threads may be as large as 1° cords in some specimens. Axial sculpture of widely spaced, high ribs; 10–13 ribs on penultimate whorl, 9–11 ribs on last whorl, not including varix. Intersections of axial and spiral sculptured with strong, elongated nodules. Terminal varix well-developed, reflected, somewhat constricted, thick, wide, with 1–3 axial swellings; often preceded by a wide, flat space on whorl. Aperture oval, outer lip with 10–14 sharp, lirate teeth; canals bounded by larger teeth. Columella angled at siphonal canal, bounded by two plications; one denticle bounding anal canal on columella. Columella with 4–11 weak denticles. Siphonal canal short, open. Color yellowish tan with interspaces of spiral threads colored brown as they pass over axial ribs; wide, white peripheral band is always evident. Aperture white. Operculum, radula, and anatomy unknown.

Holotype: ANSP 178477, lost (*fidic* P. Callomon, pers. comm., 2008) but previously illustrated in Kaicher (1986: No. 4442), reproduced here.

Type Locality: Puerto Plata, Dominican Republic.

Other Material Examined: Costa Rica. UF 383284, 388334, both Moín Bay. Bahamas. GTW 6735b, 13.3 m, Start Bay, Mayaguana Island. Puerto Rico. HGL, UF 158056, both Piñones Beach, San Juan; UF 163093,

N Mayaguez. Cuba. UF 55712, Guantánamo, Guantánamo Province. Barbados. UF 266957. Colombia. GTW 6735f, 8 m, Cabo de La Vela, La Guajira Peninsula.

Distribution: The range of this very rare species has not been adequately delineated. It has been recorded from the central Antilles, Costa Rica, Barbados, and Colombia.

Habitat: Dead shells have been recorded from 8 m in a sand substrate.

Etymology: Greek *adelos*, unknown, obscure, in reference to the long hidden nature of this species.

Discussion: The holotype is lost but the original figure and Kaicher (1986) clearly depicts the species discussed here. Most records of this species are for the similar *P. chalconius* new species. It differs from *P. chalconius* in generally having fewer axial ribs (10–13 on the penultimate whorl in *P. adelus* vs. 12–17 in *P. chalconius*), which are more prominent and separated by deeper interspaces in *P. adelus*. *Parviphos chalconius* also has more lirae on the inner side of the outer lip (14–19) than does *P. adelus* (10–14). The color pattern of *P. adelus* is very uniform: darker axial ribs with a prominent peripheral white band; *P. chalconius* has a color pattern of brown splotches and dots with a white band (rarely absent). Some individuals of *Anna milleri* are similarly colored but that species is much smaller and lacks the reflected terminal varix. The eastern Pacific Ocean *P. nigricostatus* (Reeve, 1846) is the cognate of *P. adelus*; it somewhat larger and darker in color but otherwise has the same overall sculpture and color pattern. This is the first recognition of *Parviphos* in the Pacific Ocean. See Table 8 for a comparison with other species.

Parviphos chalconius new species
(Figures 248–263)

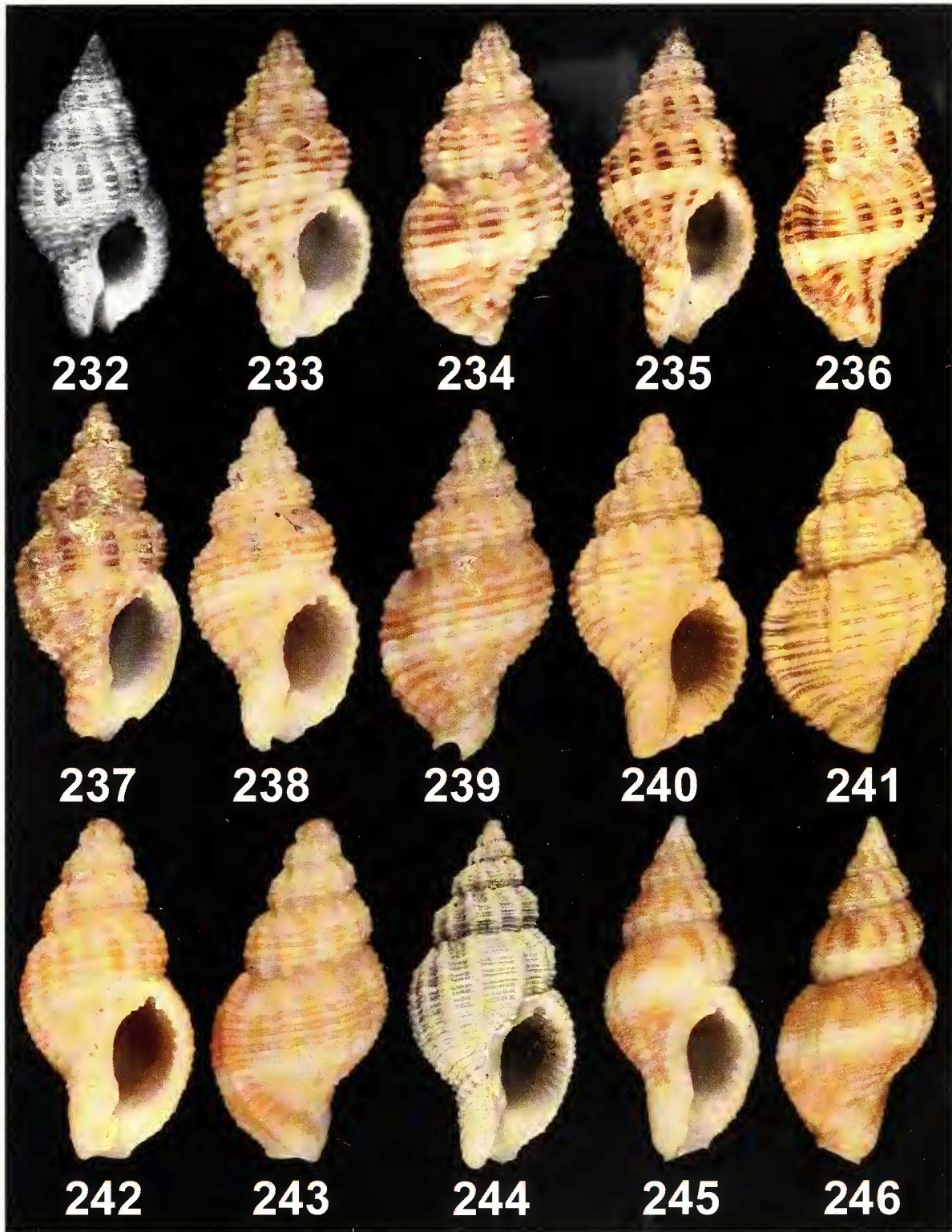
Antillophos oxyglyptus Dall and Simpson, 1901, Warmke and Abbott, 1961: 115, pl. 21, fig. g [misidentification].

Bailya parva (Adams, 1850).—Humphrey, 1975: pl. 17, figs. 21, 21a [misidentification].

Phos adelus Schwengel, 1942.—Sarasua and Espinosa, 1984: 7, fig. 4c [misidentification]; Robin, 2008: 183, fig. 3 [misidentification].

Parviphos adelus (Schwengel, 1942).—Redfern, 2001: 92, pl. 43, fig. 391 [misidentification].

Description: Shell 11.6–16.7 mm in length (holotype 13.9 mm in length). Fusiform; spire 50 – 60% total length. Protoconch small, of 1.5 smooth, white whorls with tan blotches. Teleoconch of 5 whorls, strongly demarcated from protoconch. Teleoconch sculpture of ca. 27 rounded, widely-separated, spiral threads, including siphonal canal, with intercalated microscopic threads. Spiral cords on siphonal canal slightly stronger. Axial sculpture of widely spaced, high ribs; 12–17 ribs on penultimate whorl, 18 ribs on last whorl, becoming obsolete on last ½ whorl, not including varix. Intersections of axial and spiral sculptured with strong,



Figures 232–246. *Parviphos* species. **232–244.** *Parviphos adelus* (Schwengel, 1942). **232.** Holotype, ANSP 178477, reproduced from Kaicher (1946), No. 4442, 16.5 mm. **233–234.** UF 158056, Piñones Beach, San Juan, Puerto Rico, 15.3 mm; **235–236.** GTW 6735b, 13.3 m, Start Bay, Mayaguana Island, Bahamas, 14.4 mm; **237.** UF 266958, Punta Galeta, Isla Galeta, Panama, 14.4 mm. **238–239.** UF 55712, Guantánamo, Guantánamo Province, Cuba, 13.1 mm; **240–241.** UF 266957, Barbados, 14.3 mm; **242–244.** UF 383284, Moín Bay, Costa Rica, **242–243.** 13.9 mm; **244.** 16.2 mm (bleached). **245–246.** *Parviphos marijkae* (De Jong and Coomans, 1988). Holotype, ZMA 3.87.082, 16.7 mm.



Figure 247. Distribution of *Parviphos adelus* (Schwengel, 1942) (solid) and *Parviphos marijkae* (De Jong and Coomans, 1988) (bullseye).

elongated nodules. Terminal varix well-developed, reflected, somewhat constricted, wide, thick. Aperture oval, inside of outer lip with 14–19 lirae. Columella angled at siphonal canal; anal canal bounded by a denticle, siphonal canal bounded by weak lirae, remainder of columella with 4–10 weak denticles; parietal lip barely adherent. Siphonal canal short, open. Color white with brown patches, often more or less aligned with axial ribs, and wide subperipheral white band; the intensity of the color varies considerably but the pattern is fairly uniform. The white subperipheral band is rarely absent. Aperture white. Operculum, radula, and anatomy unknown. Juveniles have a thin periostracum with minute bristles.

Holotype: UF 425829.

Type Locality: 30 m, Mariel sands, La Habana Province, Cuba.

Paratypes: UF 425830, 1 shell, 15.3 mm, from type locality; UF 150208, 3 shells, 12.5, 13.5, 13.8 mm, Hog Island, off New Providence, Bahamas; BMSM 17980, 1 shell, 13.8 mm, 5 m, at night, Honeymoon Cove, Gun Cay, Bahamas (ex GTW).

Other Material Examined: Mexico. UF 361554, Cayos Arcas; EFG 26051, 52–53 m, 22° 16' N, 90° 43' W, off Mérida. Belize. EFG 10609, off Cay Bokei, Turneffe

Islands. Honduras. EFG 9221, 10 m, Lagoon Reef, Utila Island; HGL, Caribe Bight, Roatán Island; EFG 5383, 0.6 m, Caribe Point, Roatán Island. Panama. UF 266958, Punta Galeta, Isla Galeta. Florida. UF 352845, Delray Beach, Palm Beach Co.; UF 157577, 20 m, Pompano Beach fill, Broward Co.; UF 120740, 6.7 m, Key Largo, off Pickles Reef, Monroe Co.; FMNH 315221, 2–5 m, Carysfort Reef, off Key Largo, Monroe Co., 25° 13' N, 80° 12' W; FMNH 150205, Carysfort Reef, off Key Largo, Monroe Co., FMNH 315163, 7 m, Molasses Reef, Key Largo, Monroe Co.; GTW 6735a, under rubble, 3.3–6.6 m, Fowey Rocks, Key Largo, Monroe Co. Florida; BMSM 8003, Sombrero Key, Monroe Co.; FMNH 289069, 8 m, Looe Key, Big Pine Key, Monroe Co.; UF 121777, Looe Key, Big Pine Key, Monroe Co.; FMNH 154783, Fort Jefferson, Dry Tortugas; UF 425831, Dry Tortugas. Bahamas. BMSM 38498, 2.6–3.3 m, Tarpum Bay, Eleuthera; UF 267201, Nassau, New Providence Island; UF 352844, 26.7–28.3 m, Gold Rock, S shore Grand Bahama Island; UF 150207, 150210, both Rose Island; CR 8571, 10 m, Chub Rocks, Abaco, 26° 44' N, 77° 13' W. Cuba. UF 150209, 30 m, Mariel sands, La Habana Province; UF 266959, 397260, both Varadero, Matanzas Province. Puerto Rico. UF 164191, La Parguera; UF 164328, 5 m, Icacos. US Virgin islands. UF 154782, 266957, 397108, all Water Island. Antigua. GTW 6735d, 6–10 m, coral rubble, Falmouth. Trinidad and Tobago. UF 281381, Scarborough. Colombia. GTW 6735e, on rubble bottom, 2–4 m, Islas de Rosario, Cartagena.

Distribution: Widely distributed from the eastern Gulf of Mexico throughout the Caribbean Sea to Colombia and Tobago.

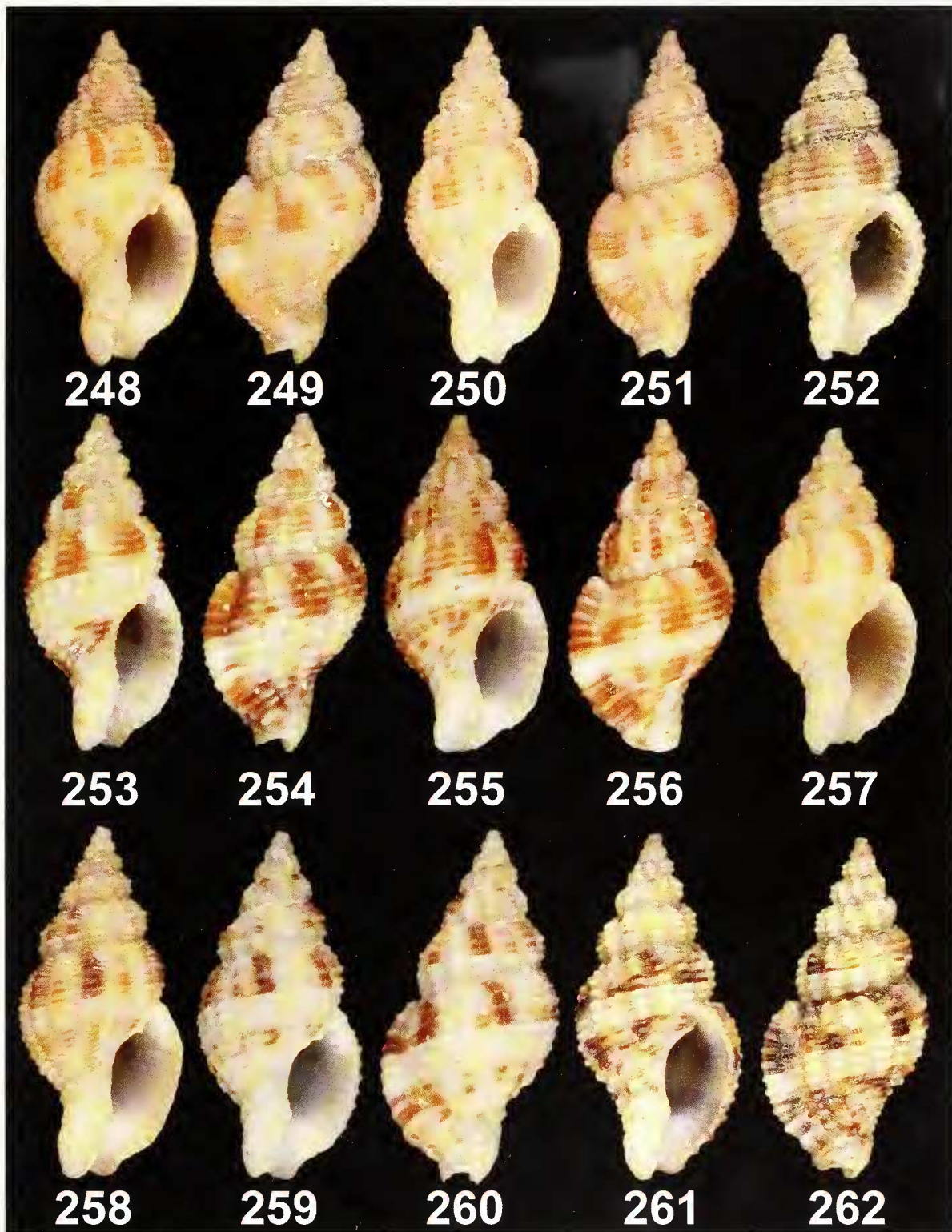
Habitat: Dead shells have been recorded from 0.6–30 m. Live specimens are associated with coral rubble and under rocks at 5–30 m.

Etymology: Latin *chalcedonius*, resembling the mineral chalcedony.

Discussion: This species has been confused in the literature and in collections with *Parviphos adelus*, which appears to be a much rarer species and to have a more limited distribution, and with *Bailya parva*, to which it bears no resemblance. It is not particularly rare, only misunderstood. *Parviphos chalcedonius* has more axial ribs and more inner lip lirae than in *P. adelus*. The color patterns are also quite different. See the

Table 8. Shell characteristics of *Parviphos* species.

	Average length (max) mm	# axial ribs on penultimate whorl	# denticles on columella	# lirae on inner surface of outer lip	color
<i>adelus</i>	14.1 (16.2)	10–13	4–11	10–14	White with dark axials and white band
<i>chalcedonius</i>	13.6 (16.7)	12–17	4–10	14–19	White with brown patches and white band
<i>marijkae</i>	16	14	7	9	Orange-tan with white band



Figures 248–262. *Parviphos chalconus* new species. **248–249.** Holotype, UF 425829, 13.9 mm. **250–251.** Paratype, UF 425830, from type locality, 15.3. **252.** UF 281381, Scarborough, Tobago, 13.9 mm. **253–254.** Paratype, UF 150208, Hog Island, off New Providence, Bahamas, 13.8 mm. **255–256.** UF 120740, 6.7 m, Key Largo, off Pickles Reef, Monroe Co., Florida. **257.** UF 266959, Varadero, Matanzas Province, Cuba, 13.5 mm. **258.** GTW 6735e, 2–4 m, Islas de Rosario, Cartagena, Colombia, 13.6 mm. **259–260.** GTW 6735a, 3.3–6.6 m, Fowey Rocks, Key Largo, Monroe Co., Florida, 13.1 mm. **261–262.** GTW 6735d, 6–10 m, Falmouth, Antigua, 13.7 mm.



Figure 263. Distribution of *Parviphos chalcedonius* new species.

discussions under *P. adelus* and *P. marijkae* for additional comparisons with those species and Table 8.

Parviphos marijkae (De Jong and Coomans, 1988)
(Figures 245–247)

Bailya marijkae De Jong and Coomans, 1988: 82, pl. 38, fig. 449; Faber, 2007: 74, figs. 11, 12 [in synonymy of *P. milleri*].
“*Bailya*” *marijkae* De Jong and Coomans, 1988.—Watters, 2007: 10.

Description: 16.7 mm in length. Fusiform; spire ca. 60% total length. Protoconch small, of 1.5 smooth, somewhat flattened, white whorls. Teleoconch of 5 whorls, strongly demarcated from protoconch. Teleoconch sculpture of ca. 28 rounded, widely separated, narrow, spiral cords, including siphonal canal, with intercalated microscopic threads. Axial sculpture of widely spaced, low ribs; ca. 14 ribs on penultimate whorl, ca. 13 ribs on last whorl, becoming obsolete and sigmoidal on last ½ whorl, not including varix. Intersections of axial and spiral sculptured with weak, elongated nodules. Terminal varix well-developed but low, not reflected. Columella with 7 wide denticles, canal bounded by denticle, siphonal canal bounded by weak lirae; parietal lip thick, erect on anterior ¾ths. Inner surface of outer lip with 9 lirae, largest at the anal canal. Siphonal canal short, open. Color orangish-tan, darkest on axial ribs, with wide, white peripheral band. Aperture white. Operculum, radula, and anatomy unknown.

Holotype: ZMA 3.87.082.

Type Locality: Curaçao.

Distribution: Known only from Curaçao.

Habitat: Unknown.

Etymology: Named after Marijke de Jong, daughter of K.M. de Jong.

Discussion: The holotype was the only specimen of *P. marijkae* available for study, and no paratypes were

mentioned, although the original description stated that other specimens were known to the authors from Awa di Oostpunt, Schottegat, “and other localities in Curaçao.” Faber (2007) synonymized *B. marijkae* with *A. milleri*; however, its closest relatives are *P. chalcedonius* and *P. adelus*. It differs from *A. milleri* in its greater size (16 vs. 11 mm), more elongate shape, greater number of axial ribs on the penultimate whorl (14 vs. 9), and obsolete axials on the last ½ whorl. It differs from *P. chalcedonius* and *P. adelus* in having fewer lirae on the inner lip, fewer columellar denticles, a less massive, non-reflected terminal varix, and a different color pattern. See Table 8 for a comparison with other species.

Genus *Engina* Gray, 1839

Engina Gray, 1839: 112–113.

Type Species: *Engina zonata* Gray, 1839, by subsequent designation of Gray (1847) [= *Purpura turbinella* Kiener, 1835, see Orr (1962)].

Discussion: The genus *Engina*, based on *E. turbinella* (Kiener, 1835), encompasses a wide variety of conchologically disparate species requiring reallocation that is beyond the immediate scope of this study. The type “species” itself probably contains several different species. One species, *Engina goncalvesi* Coltro, 2005, is discussed here because of its affinities to, and reported synonymy with, *P. milleri*.

Engina goncalvesi Coltro, 2005
(Figures 190, 191)

Engina goncalvesi Coltro, 2005: 1–2, pl. B, figs. 1–11; Faber, 2007: 74 [in synonymy of *Engina milleri* (Usticke, 1959)].

Description: Average size 12.1 mm in length (min, 11.0; max, 14.2). Fusiform; spire ca. 50% total length. Protoconch small, of 1.5 smooth, brown whorls with pale peripheral band. Teleoconch of 5 whorls, abruptly arising from protoconch. Teleoconch sculpture of ca. 20 flattened, spiral threads, including siphonal canal, with numerous intercalated 2° and 3° threads. Spiral cords on siphonal canal slightly stronger. Axial sculpture of broad, low ribs; ca. 20 ribs on penultimate whorl, obsolete on most specimens by last whorl. Intersections of axial and spiral sculptured with weak, elongated nodules. Terminal varix well-developed, flaring, moderately narrow. Aperture oval, outer lip with 6–7 teeth. Columella angled at siphonal canal and bearing ca. 5 irregular denticles on anterior half, a single liriate denticle bounding anal canal; parietal lip erect for most of its length. Siphonal canal short, open. Color brown with pale tan spiral band at sub-periphery, primary spirals often darker. Aperture with brownish-purple tinge. Operculum leaf-shaped, golden-tan, with anterior terminal nucleus. Radula and anatomy unknown.

Holotype: Stated to be in Museu de Zoologia da Universidade de São Paulo, MZSP 37179, but not found (*vide* L. R. L. Simone, pers. comm., 2008).

Type Locality: Off Cabo Frio, Rio de Janeiro State, Brazil.

Paratypes: Museu Oceanográfico Eliézer Rios da Fundação Universidade de Rio Grande, Brazil, MORC 43854, 1 shell; Museu Nacional da Universidade Federal do Rio de Janeiro, Brazil, unnumbered, 2 shells; P.M. Santos Costa coll., 1 shell. The localities of the paratypes were not given and are presumed to be from the type locality.

Other Material Examined: Brazil. GTW 12477a, on rocks in caves at 40–50 m, off Arraial do Cabo, Rio de Janeiro State.

Distribution and Habitat: “Lives under rocks at 25–35 meters, between Cabo Frio, Rio de Janeiro State and Ilhabela, São Paulo State” (Coltro, 2005: 2). Additional records here increase the depth of live-taken individuals to 45 m.

Etymology: Named for Paulo Cesar Pinto Gonçalves, discoverer of the species.

Discussion: This species is somewhat similar to *A. milleri* (Usticke, 1959) and was synonymized with it by Faber (2007). I feel it is distinct. *Engina goncalvesi* differs from *A. milleri* in the following ways: in *E. goncalvesi* the axial sculpture is obsolete on the last whorl but remains rather prominent in *A. milleri*; the terminal varix in *E. goncalvesi* is flared and relatively narrow (a characteristic of *Engina*), in *A. milleri* it is somewhat constricted and much thicker (characteristic of *Ama*); the siphonal canal is longer and straighter in *E. goncalvesi* than in *A. milleri*; in *E. goncalvesi* there are ca. 13 axial ribs on the penultimate whorl in contrast to 8–9 ribs in *A. milleri*; *E. goncalvesi* lacks denticles on the posterior half of the columella except for a single lirate tooth bordering the anal canal whereas *A. milleri* has a series of distinct denticles along the entire length of the parietal lip. *Engina demani* De Jong and Coomans, 1988, from the Netherlands Antilles is very similar but has stronger sculpture that persists on the final whorl; the aperture of *E. goncalvesi* is pale purple and brown whereas the aperture of *E. demani* is white.

Hesperisternia Gardner, 1944

Type species: *Hesperisternia waltoni* Gardner, 1944, by original designation.

Hesperisternia itzamnai new species
(Figures 192–195, 264)

Description: Shell 16.2 (broken)–17.8 mm in length (holotype 17.8 mm in length). Fusiform; spire ca. 50% total length. Protoconch small, conical, of 1.5 smooth, white whorls with tan blotches. Teleoconch of 5.5 whorls, strongly demarcated from protoconch. Teleoconch sculpture of ca. 13 rounded, widely-separated spiral threads, including siphonal canal, with numerous intercalated 2° threads. Subsutural area wide, flat, with single



Figure 264. Distribution of *Cumia clavula* new species (solid), *Cumia sunderlandi* (Petuch, 1995) (bullseye), and *Hesperisternia itzamnai* new species (Z).

primary thread. Spiral cords on siphonal canal slightly stronger. Axial sculpture of widely-spaced, rounded ribs; ca. 10 on penultimate whorl, ca. 8 obsolete, “C”-shaped ribs on last whorl, not including varix, with numerous 2° axial threads. Intersections of axial and spiral sculpture with strong, elongated nodules, strongest at periphery. Terminal varix weakly-developed, somewhat constricted, narrow. Aperture oval, outer lip with 4 medial teeth. Anal canal deeply indented between two teeth; columellar tooth bifid. Parietal wall erect with 7 weak lirate teeth. Siphonal canal moderately short, open. Color white with orangish-tan interaxial spaces cut by a white subperipheral narrow band; the spaces form broken flammulations below this band. Aperture white. Operculum, radula, and anatomy unknown.

Holotype: UF 170226.

Type Locality: 180 m, NE of Contoy Light, Isla Contoy, Quintana Roo State, Mexico.

Paratype: UF 170226.

Distribution: Known only from the type locality.

Habitat: Both shells are worn, collected from 200 m. Substrate unknown.

Etymology: Mayan, *Itzamná*, the creator deity in Mayan mythology. This species is known from off the Yucatan Peninsula, ancestral home of the Mayans. A masculine name.

Discussion: This is apparently a very rare species. Conchologically, it is nearest to *H. jingosa* (Adams, 1852) from the eastern Pacific and *H. janowskyi* (Coltro, 2005) from Brazil, and less so to *H. karinae* (Usticke, 1953) from Brazil. It differs from those species in lacking denticles on the columella, its coloration, and its geographic isolation.

Colubrariidae Dall, 1904

Discussion: The family Colubrariidae has had an uncertain systematic history. Various authors have placed it in the Buccinidae, Ranellidae, or its own family. It is characterized by "a thin, noninvaginable proboscis sac in which the retracted proboscis is convolute, a vestigial radula, a glandular mid-esophagus, and a long a long stomach" (Kay, 1979: 271).

Genus *Cumia* Bivona-Bernardi, 1838

Fusus Helbling, 1779 [rejected name, see Petit and Wilson, 1991, and ICZN, 1994].

Cumia Bivona-Bernardi, 1838: 63, 322.

Type Species: *Cumia decussata* Bivona-Bernardi, 1838, by original designation (= *intertextus* Helbling, 1779).

Description: Small to medium-sized, very elongate. Protoconch minute, sometimes angulate, smooth but grading imperceptibly to teleoconch with addition of C-shaped axial ribs. Spire $\gg 50\%$ of total length. Sculpture reticulate, obsolete in some species. Varices occur on nearly every whorl, aligned or not. Parietal lip adherent for posterior half of its length. Columella without denticles or lirae, sinuous, only slightly angled. Inner lip with numerous small denticles. See Table 1 for comparison with other genera.

Discussion: Members of *Cumia* are very similar to species of *Colubraria* but differ markedly in protoconch details. In *Cumia* the protoconch appears to arise as a tiny, papillate point from the teleoconch; in *Colubraria* the protoconch is conical and much larger. *Cumia* species occur in the Mediterranean Sea (the type species is *C. intertextus*), Australia, eastern Africa, and the eastern and western Atlantic Ocean.

Cumia clavula new species
(Figures 224–227, 264)

Description: Shell 12.4–18.1 mm in length (holotype 18.1 mm in length). Fusiform, the spire ca. 60% the total length. Protoconch of 1.5 smooth, minute, papillate whorls. Teleoconch of 8 whorls, abruptly arising from the protoconch. Teleoconch sculpture of 24–26 rounded or flattened spiral threads, including siphonal canal, with 1–3 intercalated 2° threads. In some specimens the sub-sutural spiral cord is larger than the remaining cords. Axial sculpture of numerous, low threads, ca. 50 threads on last whorl, 36–60 threads on penultimate whorl; with very fine 2° threads in between. Intersections of axial and spiral sculpture minutely nodulose. Terminal varix well-developed, set back a short distance from outer lip. Previous varices not aligned, one positioned above the terminal varix, others every $\frac{3}{4}$ whorl. Aperture elongate-oval, with a weak, columellar plication at the siphonal canal, anal canal delimited by weak denticle on outer lip, none on columella. Outer lip with ca. 17 denticles and no lirations within the mouth. Parietal callus thickened, slightly raised. Siphonal canal short, open. Colored tan with a vague pale band below the periphery and vague spots below the suture. Varices white with tan bands, one

at the periphery and two on the siphonal canal. Aperture white. Operculum, radula, and anatomy unknown.

Holotype: UF 341080.

Type Locality: Moín Bay, Limón Province, Costa Rica. No habitat or depth information is available.

Paratype(s): BMSM 17973, 1 shell, 13.6 mm, 1.7 m, under coral rubble, Palenque, Dominican Republic (ex GTW); HGL, 1 shell, 14.5 mm, 5 m, under coral rubble, Isla Beata, Dominican Republic.

Other Material Examined: HGL, 1.7 m, under coral rubble, Palenque, Dominican Republic.

Distribution: Known only from Costa Rica and the Dominican Republic.

Habitat: Shallow water ($\ll 5$ m). Based on freshly dead shells found among coral rubble.

Etymology: Latin *clavula*, shaped like a small club.

Discussion: This is apparently a very rare species. It differs from the only other western Atlantic species, *Cumia sunderlandi* (Petuch, 1995) from Jamaica, in its smaller size, less polished appearance, fewer axial and spiral threads, and less developed and less reflected terminal varix. See Table 9.

Cumia sunderlandi (Petuch, 1995)
(Figures 228–230, 264)

Colubraria sunderlandi Petuch, 1995: 39–40, figs. 7–9.

Description: Average size 18.3 mm in length (min, 17.3; max, 20.0), the holotype being the largest specimen seen. Fusiform; the spire ca. 66% total length. Protoconch of 1.5 smooth, minute, papillate whorls. Teleoconch of 8.5 whorls, abruptly arising from protoconch. Teleoconch sculpture of ca. 37 rounded or flattened spiral threads, including siphonal canal, but 2° threads are nearly as strong as primaries. Axial sculpture of numerous, sharp threads, 53–88 threads on penultimate whorl, last whorl nearly smooth on last half whorl with numerous fine threads (59–70); very fine 2° threads in between. Intersections of axial and spiral sculpture minutely nodulose. Terminal varix well-developed, set back a short distance from outer lip, with a concave area abaperturally placed, slightly reflected. Previous varices aligned or not above terminal varix, less so on earliest whorls, one per whorl. Aperture elongate-oval, denticles or plications on the columella absent or confined to a few weak plications bounding the canals. Outer lip with very weak denticles (13–17) and none or weak lirations within mouth. Parietal callus thickened, raised. Siphonal canal short, open. Colored tan with narrow, white, sutural band and diffuse, tan flammulations over whorl that may be darkest below suture; a faint subperipheral pale band may also be present. Varices white with 3 tan bands or zones. Aperture white. Operculum, radula, and anatomy unknown.

Table 9. Shell characteristics of *Cumia* species.

	Average length mm	# teleoconch whorls	# spiral cords on last whorl	# axial ribs on penultimate whorl
<i>clavula</i>	14.7 (18.1)	8	24–26	36–60
<i>sunderlandi</i>	18.3 (20.0)	8.5	37	53–88

Holotype: UF 225165.

Type Locality: Montego Bay, Jamaica, under dead coral slabs in 20 m depth.

Paratypes: Sunderland coll., 2 shells, size not stated, from type locality?

Other Material Examined: Jamaica. HGL, Tyrall, Montego Bay.

Distribution: Known only from Montego Bay, Jamaica.

Habitat: In 20–30 m depth. Apparently known only from freshly dead material. Substrate unknown.

Etymology: Named for Kevan Sunderland, collector of the type material.

Discussion: A very rare species currently only known from Montego Bay. See *Cumia clavula* new species for a comparison with that species. Also see Table 9.

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